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Dairy Herd Improvement Letter

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NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM

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STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES BY BREED FOR COWS ON OFFICIAL TEST, CALVING IN 1975 1/

State and national standardized lactation averages by breed for cows on official test that calved in 1975 are presented in tables 1 and 2. Note that these averages are not the same as those used for calculating Predicted Difference.

Records Included in Averages

Only official records that passed the United States Department of Agriculture (USDA) editing (described in the December 1970 Dairy Herd Improvement Letter, ARS 44-222) were included in the averages.

Records Standardized to a 305-Day, Mature Equivalent (ME), 2X basis

Lactations for which cows were denied an opportunity to give milk for 305 days were projected to 305 days with factors that account for differences in lactation curves because of breed, age, and trait (milk or fat). The factors used by USDA were published in the August 1965 Dairy Herd Improvement Letter, ARS-44-164.

All lactations were standardized for age and month-of-calving by the factors published in "USDA-DHIA Factors for Standardizing 305-Day Lactation Records for Age and Month of Calving," ARS-NE-40, September 1974. The factors account for variation associated with age and month-of-calving within breed, season, region, and trait (milk or fat).

Lactations made by milking three or four times a day were then reduced to a two-times-a-day basis with factors published in the January-February 1972 Dairy Herd Improvement Letter, ARS 44-239.

Fat percentages were computed from the 305-day, ME, 2X milk and fat yields.

1/ Prepared by Gerald J. King, dairy husbandman, with technical assistance of James H. Grove, computer programer, and Evelyn F. Myers, statistical assistant, Animal Improvement Programs Laboratory, Beltsville, Md. 20705.

TABLE 1.--STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES FOR AYRSHIRE, GUERNSEY, AND HOLSTEIN COWS ON OFFICIAL TEST, CALVING IN 1975 1/

STATE	AYRSHIRE				GUERNSEY				HOLSTEIN			
	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT
	NO.	LB	PCT	LB	NO.	LB	PCT	LB	NO.	LB	PCT	LB
ALABAMA----------	58	10,593	3.67	389	170	10,009	4.34	434	4,555	14,959	3.66	548
ALASKA-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	60	15,393	3.48	536
ARIZONA----------	30	13,220	3.43	453	886	12,029	4.46	536	4,132	16,677	3.45	576
ARKANSAS---------	(1/)	(1/)	(1/)	(1/)	199	11,049	4.34	480	2,450	14,978	3.41	511
CALIFORNIA-------	300	12,312	3.94	485	2,985	12,016	4.52	543	86,886	18,067	3.61	652
COLORADO---------	78	11,344	3.86	438	196	10,753	4.36	469	6,396	16,003	3.51	562
CONNECTICUT------	496	12,386	3.92	486	1,085	10,213	4.71	482	13,275	15,504	3.73	578
DELAWARE---------	156	12,520	4.25	532	26	10,907	4.90	535	1,965	15,963	3.60	574
FLORIDA----------	190	11,475	3.77	432	374	10,709	4.20	450	2,129	14,288	3.24	462
GEORGIA----------	116	11,477	3.82	438	524	11,021	4.66	514	7,362	14,596	3.56	520
HAWAII-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	77	15,911	3.06	486
IDAHO------------	57	10,911	3.88	423	617	9,870	4.55	449	7,751	15,467	3.66	566
ILLINOIS---------	554	11,363	3.86	439	1,995	10,257	4.67	479	28,481	14,966	3.70	554
INDIANA----------	304	11,807	3.92	463	3,679	10,784	4.74	511	19,482	15,381	3.69	568
IOWA-------------	1,402	11,300	3.93	444	2,286	9,948	4.70	468	28,619	14,278	3.66	522
KANSAS-----------	638	10,611	3.84	408	763	10,047	4.68	470	21,524	14,819	3.55	527
KENTUCKY---------	104	10,600	3.54	375	568	10,191	4.48	456	7,666	15,023	3.52	529
LOUISIANA--------	210	10,167	3.59	365	2,017	9,716	4.22	410	5,580	13,930	3.38	470
MAINE------------	412	12,834	3.91	502	311	10,628	4.60	489	13,133	15,366	3.61	555
MARYLAND---------	476	10,593	4.04	428	1,692	9,590	4.69	450	26,733	14,992	3.65	548
MASSACHUSETTS----	687	11,231	3.88	436	519	11,087	4.52	501	10,202	15,210	3.57	544
MICHIGAN---------	45	12,314	3.98	490	2,177	11,100	4.69	521	38,224	15,615	3.71	580
MINNESOTA--------	813	10,518	3.96	417	3,633	9,934	4.61	458	82,595	14,854	3.65	543
MISSISSIPPI------	262	11,011	3.70	403	442	10,374	4.20	435	3,292	14,528	3.39	492
MISSOURI---------	65	12,656	3.87	490	1,664	10,380	4.59	476	14,152	14,510	3.56	517
MONTANA----------	120	11,901	3.58	426	56	12,714	4.71	598	1,653	14,659	3.57	524
NEBRASKA---------	119	9,762	3.83	374	661	9,452	4.69	443	9,261	14,375	3.67	528
NEVADA-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	384	17,252	3.59	619
NEW HAMPSHIRE----	632	12,496	3.81	477	215	9,629	4.46	429	6,671	15,340	3.61	554
NEW JERSEY-------	24	12,582	3.84	483	366	9,459	4.80	454	10,071	15,392	3.70	569
NEW MEXICO-------	101	12,490	3.65	456	951	11,747	4.18	491	5,078	16,292	3.27	533
NEW YORK---------	3,455	12,259	3.93	482	2,994	10,649	4.61	491	124,380	15,590	3.61	563
NORTH CAROLINA---	201	12,242	3.77	461	671	10,515	4.63	487	22,601	16,030	3.60	578
NORTH DAKOTA-----	(1/)	(1/)	(1/)	(1/)	43	8,973	4.65	417	2,894	13,285	3.62	480
OHIO-------------	993	12,017	3.84	461	3,683	11,068	4.65	515	35,988	16,008	3.68	590
OKLAHOMA---------	357	11,965	3.83	458	457	11,746	4.50	528	5,891	15,407	3.53	544
OREGON-----------	164	12,854	3.94	507	1,233	10,774	4.67	503	8,620	16,314	3.66	598
PENNSYLVANIA-----	1,548	11,908	4.02	479	6,001	10,245	4.70	481	110,142	15,136	3.77	571
PUERTO RICO------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	1,071	11,039	3.14	347
RHODE ISLAND-----	81	12,224	3.78	462	(1/)	(1/)	(1/)	(1/)	551	14,549	3.58	521
SOUTH CAROLINA---	(1/)	(1/)	(1/)	(1/)	1,808	11,114	4.58	509	5,197	15,394	3.62	558
SOUTH DAKOTA-----	101	11,135	3.97	443	92	12,232	4.42	541	4,478	14,615	3.60	526
TENNESSEE--------	96	11,133	3.87	431	820	10,388	4.56	473	9,650	15,507	3.57	554
TEXAS------------	5	15,376	3.77	579	448	9,640	4.48	431	10,420	15,817	3.40	538
UTAH-------------	6	11,622	3.81	443	13	9,728	4.35	423	7,476	16,106	3.57	575
VERMONT----------	1,492	11,713	3.87	453	462	10,291	4.65	478	22,703	15,095	3.57	540
VIRGINIA---------	525	11,740	3.73	438	2,568	10,231	4.60	471	36,595	15,187	3.55	540
WASHINGTON-------	330	13,233	3.94	521	2,646	11,600	4.68	542	20,232	16,913	3.55	601
WEST VIRGINIA----	107	9,900	3.78	374	262	9,254	4.68	433	6,536	15,139	3.52	533
WISCONSIN--------	783	11,301	3.92	443	6,861	10,409	4.63	482	108,495	15,296	3.77	577
WYOMING----------	2	8,400	3.66	308	30	13,449	4.66	626	498	15,266	3.51	536
UNITED STATES----	18,695	11,730	3.90	457	62,149	10,573	4.61	487	1,014,257	15,528	3.65	566

1/ NO LACTATION RECORDS REPORTED.

TABLE 2.--STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES FOR JERSEY, BROWN SWISS, AND MILKING SHORTHORN COWS ON OFFICIAL TEST, CALVING IN 1975 1/

STATE	JERSEY				BROWN SWISS				MILKING SHORTHORN			
	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT	RECORDS	MILK	FAT	FAT
	NO.	LB	PCT	LB	NO.	LB	PCT	LB	NO.	LB	PCT	LB
ALABAMA----------	2,139	10,647	4.78	510	204	12,505	3.99	499	(1/)	(1/)	(1/)	(1/)
ALASKA-----------	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
ARIZONA----------	949	11,215	4.92	552	620	16,623	3.80	631	27	11,196	3.73	418
ARKANSAS---------	664	9,001	4.81	433	28	12,895	3.82	493	92	12,056	3.56	429
CALIFORNIA-------	5,337	11,080	5.08	563	539	13,797	4.06	560	102	12,015	3.59	431
COLORADO---------	253	10,110	4.88	493	264	14,848	4.11	610	37	10,757	3.57	384
CONNECTICUT------	358	9,708	5.08	493	307	13,692	3.99	547	(1/)	(1/)	(1/)	(1/)
DELAWARE---------	2	11,155	5.91	660	6	14,943	4.33	648	(1/1	(1/)	(1/)	(1/)
FLORIDA----------	1,275	9,244	4.36	403	573	12,492	3.48	434	(1/)	(1/)	(1/)	(1/)
GEORGIA----------	1,387	9,547	4.93	470	327	12,655	3.73	472	(1/)	(1/)	(1/)	(1/)
HAWAII-----------	(1/1	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
IDAHO------------	1,184	9,977	4.80	478	77	12,633	3.99	503	12	13,775	3.53	487
ILLINOIS---------	1,217	9,204	4.96	457	1,310	12,674	4.08	517	67	11,225	3.76	422
INDIANA----------	1,179	9,179	4.98	457	801	13,240	3.97	525	15	9,225	3.89	358
IOWA-------------	2,004	9,577	4.98	477	2,730	12,733	4.04	514	360	10,138	3.67	372
KANSAS-----------	534	9,342	4.85	453	263	12,839	3.97	510	2	10,025	3.48	349
KENTUCKY---------	1,961	10,115	4.73	478	254	11,394	3.72	424	(1/)	(1/)	(1/)	(1/)
LOUISIANA--------	1,719	9,012	4.59	413	111	10,929	3.68	401	(1/)	(1/)	(1/)	(1/)
MAINE------------	1,160	11,110	4.82	536	54	11,998	4.01	481	95	8,032	3.57	287
MARYLAND---------	535	8,261	5.02	415	311	12,270	3.85	472	36	9,267	3.57	331
MASSACHUSETTS----	1,021	10,004	4.96	496	67	11,982	3.79	455	30	9,332	3.53	329
MICHIGAN---------	1,759	9,507	4.96	471	306	12,777	4.04	516	10	11,066	3.80	421
MINNESOTA--------	1,861	9,504	4.83	459	1,427	12,572	3.99	502	512	11,216	3.63	407
MISSISSIPPI------	1,726	10,020	4.66	467	20	13,162	3.66	482	(1/)	(1/)	(1/)	(1/)
MISSOURI---------	1,162	9,455	4.96	469	538	11,833	3.83	453	135	10,477	3.83	402
MONTANA----------	26	6,965	5.10	354	28	13,362	3.87	517	(1/)	(1/)	(1/)	(1/)
NEBRASKA---------	84	9,855	4.82	475	454	12,344	4.20	519	190	9,374	3.64	341
NEVADA-----------	513	12,280	4.89	601	8	11,739	3.90	456	(1/)	(1/)	(1/)	(1/)
NEW HAMPSHIRE----	936	10,471	4.80	502	87	9,363	3.91	366	2	11,705	4.74	555
NEW JERSEY-------	348	11,499	4.76	547	148	11,564	4.06	469	(1/)	(1/)	(1/)	(1/)
NEW MEXICO-------	170	12,134	4.78	580	99	12,293	3.68	452	(1/)	(1/)	(1/)	(1/)
NEW YORK---------	3,804	9,888	4.97	492	1,506	13,054	3.98	519	42	10,120	3.57	361
NORTH CAROLINA---	1,817	9,807	4.93	484	225	12,584	3.97	499	2	8,940	3.60	322
NORTH DAKOTA-----	9	8,474	4.33	365	155	11,839	3.99	472	21	11,872	3.57	424
OHIO-------------	3,965	10,120	4.99	505	1,347	14,331	4.10	588	166	10,700	3.74	400
OKLAHOMA---------	695	9,416	4.81	453	206	12,277	3.89	477	133	10,842	3.48	377
OREGON-----------	3,221	10,656	5.08	541	650	13,573	4.09	555	30	10,273	3.94	404
PENNSYLVANIA-----	3,617	9,596	5.00	479	813	13,125	4.11	539	91	10,182	3.73	380
PUERTO RICO------	1	6,810	2.75	187	4	11,605	3.31	385	(1/)	(1/)	(1/)	(1/)
RHODE ISLAND-----	37	11,218	5.32	596	1	4,300	4.09	176	(1/)	(1/)	(1/)	(1/)
SOUTH CAROLINA---	2,834	11,327	4.94	560	59	13,683	3.99	546	1	11,920	3.05	364
SOUTH DAKOTA-----	112	8,342	5.04	420	301	11,508	4.07	468	91	8,995	3.61	325
TENNESSEE--------	3,298	10,484	4.79	502	334	13,242	3.96	524	(1/)	(1/)	(1/)	(1/)
TEXAS------------	2,739	10,079	4.64	468	994	13,417	3.78	507	(1/)	(1/)	(1/)	(1/)
UTAH-------------	780	10,408	4.85	505	36	13,279	4.07	541	(1/)	(1/)	(1/)	(1/)
VERMONT----------	4,838	10,220	4.90	501	241	14,397	3.83	552	32	11,505	3.60	414
VIRGINIA---------	806	10,002	4.82	482	226	11,682	3.90	456	1	9,220	3.31	305
WASHINGTON-------	3,081	11,140	5.00	557	363	14,861	3.91	580	(1/)	(1/)	(1/)	(1/)
WEST VIRGINIA----	393	9,818	4.92	482	18	10,980	3.92	431	25	14,606	3.22	470
WISCONSIN--------	2,244	9,527	4.95	471	2,194	13,003	4.01	522	289	10,837	3.61	392
WYOMING----------	58	8,837	4.99	441	1	14,450	4.06	586	(1/)	(1/)	(1/)	(1/)
UNITED STATES----	71,812	10,150	4.90	497	21,635	13,063	3.97	519	2,648	10,596	3.64	386

1/ NO LACTATION RECORDS REPORTED.

DISTRIBUTION OF ACTIVE ARTIFICIAL INSEMINATION (AI) SIRES SUMMARIZED BY LEVEL OF PREDICTED DIFFERENCE FOR MILK AND DOLLARS 1/

The average production of daughters and daughters' herdmates of all active AI sires, summarized in the Spring 1977 USDA-DHIA Sire Summary List, was categorized by breed of sire and grouped according to the range of the sires' Predicted Difference (PD) for milk (table 1) and for dollars (table 2).

The average PD's for milk and dollars by breed for 2 years were as follows:

Breed	Spring 1976 Milk Lb	Spring 1977 Milk Lb	Spring 1976 Dollars	Spring 1977 Dollars
Ayrshire	516	504	44	48
Guernsey	428	466	37	44
Holstein	500	554	37	45
Jersey	557	635	48	61
Brown Swiss	440	596	38	58
Milking Shorthorn	745	743	65	72
Average	501	558	37	47

The weighted average PD milk increased for the third straight year. And four of the six breeds increased in average PD milk.

Table 1 shows that in the Spring 1977 Sire Summary, the number of bulls in each breed with PD's for milk of +400 pounds or higher were as follows: 14 of 25 Ayrshires, 41 of 78 Guernseys, 575 of 908 Holsteins, 92 of 113 Jerseys, 27 of 39 Brown Swiss, and 8 of 10 Milking Shorthorns.

Comparison of Spring 1977 data for Active AI sires with non-AI sires shows the following (PDM equals Predicted Difference for milk and PD$ equals Predicted Difference for dollars):

Breed	Average Active AI PDM Lb	Sires above +399 PDM Pct	Sires below 0 PDM Pct	Average non-AI PDM Lb	Sires above +399 PDM Pct	Sires below 0 PDM Pct
Ayrshire	+504	56	4	-79	12	62
Guernsey	+466	53	9	-30	6	57
Holstein	+554	63	11	-148	11	63
Jersey	+635	81	7	-47	15	56
Brown Swiss	+596	69	10	0	14	49
Milking Shorthorn	+743	80	0	+124	16	33

1/ Prepared by Gerald J. King, dairy husbandman, and James H. Grove, computer programer, Animal Improvement Programs Laboratory, Beltsville, Md. 20705.

Breed	Average Active AI PD$	Sires above +39 PD$	Sires below 0 PD$	Average non-AI PD$	Sires above +39 PD$	Sires below 0 PD$
	$	Pct	Pct	$	Pct	Pct
Ayrshire	+48	60	4	-7	12	62
Guernsey	+44	53	10	-2	6	57
Holstein	+45	57	14	-16	7	66
Jersey	+61	80	7	-5	14	56
Brown Swiss	+58	67	10	+1	14	50
Milking Shorthorn	+72	80	0	+12	14	34

The unweighted average superiority for PD milk across breeds is 614 pounds for Active AI sires, and the superiority for PD dollars across breeds is $58 for Active AI sires. Percentages of high PD's and low PD's are nearly reversed for many of the values between active AI and non-AI sires.

Interpretation of Data

A zero Predicted Difference in tables 1 and 2 indicates that a sire with zero PD, used in breed average herds, has about one-half of his daughters above and about one-half below breed average. He can be expected to transmit somewhat less than breed average production to his future progeny because of genetic improvement across the years. In general, the bulls with minus PD's sire daughters of which more than 50 percent are below breed average in production. Bulls with higher PD's are expected to sire daughters with higher production than bulls with lower PD's regardless of herd production level.

What These Data Mean to Dairymen

Dairymen who derive most of their income from the sale of milk should, of course, be using sires with high plus PD's. These tables indicate that the availability of AI sires with plus PD's is sufficient in all breeds to fulfill the requirements of the industry for a pool of germ plasm that will assure a steady increase in production in future generations. The distribution of PD's shown in table 1 indicates that a great deal more selection for increased production could be practiced. For instance, 9.8 percent of sires in all breeds have PD's for milk below zero. This figure has been reduced from 25.9 percent in January 1972. If these sires are used in breed average herds, the probability that they will transmit at least breed average milk production to their daughters is less than 50 percent.[2] The use of bulls with minus or zero PD's should be avoided. Dairymen should be aware that if they use such bulls to breed cows in the same environment, most can expect to have lower herd averages in the future.

On the other hand, 65 percent of the bulls have PD's for milk production of 400 pounds or above. Assuming a repeatability of 60 percent, the probability that such a bull will transmit above-breed-average production to his daughters is at least 87 percent.[2] Thus, these bulls will raise milk production in most herds.

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[2] April 1968 Dairy Herd Improvement Letter, ARS 44-202, pp. 21-23.

For the six breeds listed, 549 sires with a PD for milk of 600 pounds or above were included in the Spring 1977 summary. This number would be enough to breed nearly all of the approximately 50 percent of dairy cows presently being bred to AI bulls in the nation each year. The daughters of these bulls produced milk valued at $79 higher than the milk expected from their breed average herdmates.

TABLE 1. -- AVERAGE PRODUCTION OF MILK AND MILK-FAT OF DAUGHTERS OF SIRES IN ACTIVE AI SERVICE, GROUPED ACCORDING TO RANGE OF PREDICTED DIFFERENCE FOR MILK, SPRING 1977

					AVERAGE PRODUCTION									
					DAUGHTERS			HERDMATES			PREDICTED DIFFERENCES			
PRED. DIFF. MILK RANGE	SIRES IN GROUP	SIRES IN GROUP	DAUGHTERS W/HM	DAUGHTER RECORDS	MILK	FAT	FAT	MILK	FAT	FAT	MILK	FAT	FAT	$
LB	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
					AYRSHIRE									
+1200 TO +1399	2	8.0	558	941	12,581	3.8	481	11,610	3.9	452	+1,304	-0.11	+39	+117
+1000 TO +1199	2	8.0	1,288	2,468	12,638	3.8	482	11,969	3.9	468	+1,059	-.12	+28	+91
+800 TO +999	2	8.0	170	385	12,873	3.8	491	12,076	3.9	465	+918	-.06	+29	+84
+600 TO +799	4	16.0	521	978	11,982	4.0	476	11,479	4.0	457	+662	-.02	+24	+64
+400 TO +599	4	16.0	816	1,448	11,856	3.9	461	11,743	3.9	462	+506	-.07	+12	+42
+200 TO +399	5	20.0	3,108	6,368	11,647	4.0	469	11,863	3.9	468	+299	+.04	+16	+34
0 TO +199	5	20.0	2,030	4,281	11,296	4.0	450	11,645	3.9	453	+77	+.05	+8	+13
-599 TO -400	1	4.0	601	1,349	10,558	4.1	430	11,325	3.9	444	-502	+.12	-8	-37
TOTAL OR SIRE AVERAGE	25	---	9,092	18,218	11,872	3.9	467	11,722	3.9	460	+504	-.02	+18	+48
					GUERNSEY									
+1200 TO +1399	3	3.8	442	682	11,814	4.4	522	10,668	4.5	482	+1,288	-.12	+48	+125
+1000 TO +1199	4	5.1	1,068	2,019	11,688	4.5	527	10,664	4.7	498	+1,096	-.18	+33	+98
+800 TO +999	6	7.7	2,671	5,519	11,778	4.5	535	11,119	4.6	515	+868	-.11	+30	+82
+600 TO +799	16	20.5	3,225	5,392	11,829	4.5	536	11,045	4.6	512	+693	-.09	+24	+66
+400 TO +599	12	15.4	2,491	4,407	10,607	4.6	487	10,323	4.7	483	+512	-.07	+17	+48
+200 TO +399	18	23.1	3,613	6,922	11,081	4.7	518	10,907	4.7	508	+297	.00	+14	+32
0 TO +199	12	15.4	3,797	8,677	10,781	4.7	501	10,890	4.7	508	+112	-.04	+2	+9
-199 TO -1	5	6.4	318	440	10,120	4.7	473	10,631	4.7	495	-96	+.02	-3	-9
-399 TO -200	2	2.6	41	45	9,618	4.8	459	10,619	4.7	504	-282	+.03	-11	-28
TOTAL OR SIRE AVERAGE	78	---	17,666	34,103	11,129	4.6	512	10,812	4.7	503	+466	-.06	+16	+44
					HOLSTEIN									
+1800 TO +1999	4	.4	1,829	3,170	17,449	3.5	615	15,895	3.6	578	+1,860	-.15	+44	+154
+1600 TO +1799	5	.6	1,396	1,864	17,038	3.5	591	15,660	3.6	562	+1,654	-.15	+36	+134
+1400 TO +1599	19	2.1	29,832	59,572	17,652	3.5	621	16,221	3.6	587	+1,468	-.12	+34	+121
+1200 TO +1399	46	5.1	28,927	56,951	17,141	3.5	606	16,024	3.6	582	+1,279	-.12	+28	+104
+1000 TO +1199	60	6.6	62,823	145,851	16,988	3.6	606	16,113	3.6	583	+1,080	-.08	+27	+91
+800 TO +999	146	16.1	86,459	169,654	16,695	3.6	598	16,043	3.6	582	+887	-.07	+22	+75
+600 TO +799	146	16.1	90,917	192,259	16,585	3.6	597	16,150	3.6	586	+693	-.06	+16	+57
+400 TO +599	149	16.4	78,131	158,054	16,034	3.6	581	15,841	3.6	577	+509	-.06	+10	+40
+200 TO +399	140	15.4	53,834	103,698	15,870	3.6	579	15,991	3.6	582	+311	-.03	+7	+25
0 TO +199	98	10.8	33,079	67,795	15,427	3.7	567	15,850	3.6	578	+105	-.01	+2	+8
-199 TO -1	52	5.7	21,148	43,210	15,514	3.7	568	16,256	3.6	591	-95	.00	-4	-10
-399 TO -200	22	2.4	2,193	3,771	15,395	3.7	568	16,421	3.6	599	-269	.00	-10	-26
-599 TO -400	13	1.4	4,025	6,982	14,701	3.6	536	15,944	3.6	575	-481	.00	-17	-46
-799 TO -600	4	.4	2,437	2,977	14,927	3.6	545	16,253	3.6	593	-693	-.02	-28	-70
-999 TO -800	2	.2	359	622	14,055	3.7	522	15,278	3.7	566	-822	.00	-30	-79
-1000 AND BELOW	2	.2	108	133	13,816	3.9	537	15,697	3.7	587	-1,267	+.09	-34	-109
TOTAL OR SIRE AVERAGE	908	---	497,497	1,016,563	16,224	3.6	587	16,021	3.6	582	+554	-.06	+12	+45
					JERSEY									
+1400 TO +1599	2	1.8	83	128	11,356	4.7	532	9,754	5.0	491	+1,508	-.32	+43	+133
+1200 TO +1399	3	2.7	117	172	12,504	4.8	604	11,394	5.0	565	+1,339	-.19	+48	+128
+1000 TO +1199	12	10.6	1,290	2,167	11,366	4.7	539	10,742	4.9	526	+1,071	-.23	+31	+95
+800 TO +999	23	20.4	2,099	3,748	11,028	4.9	540	10,571	4.9	520	+892	-.12	+33	+87
+600 TO +799	20	17.7	6,647	12,389	10,555	4.9	521	10,160	4.9	502	+715	-.09	+28	+71
+400 TO +599	32	28.3	3,790	7,332	10,261	5.0	510	10,243	4.9	505	+504	-.06	+20	+50
+200 TO +399	8	7.1	475	939	10,417	4.9	514	10,619	4.9	523	+296	-.05	+10	+28
0 TO +199	5	4.4	925	2,057	9,328	5.1	473	9,597	5.0	475	+111	+.03	+8	+15
-199 TO -1	2	1.8	73	111	8,872	5.0	446	9,468	4.9	463	-128	+.05	-2	-10
-399 TO -200	5	4.4	226	466	9,990	4.9	490	10,338	4.8	497	-246	+.04	-9	-24
-599 TO -400	1	.9	97	143	8,140	5.0	405	9,039	4.9	439	-520	+.08	-20	-51
TOTAL OR SIRE AVERAGE	113	---	15,822	29,652	10,580	4.9	520	10,348	4.9	509	+635	-.10	+23	+61

TABLE 1. -- AVERAGE PRODUCTION OF MILK AND MILK-FAT OF DAUGHTERS OF SIRES IN ACTIVE AI SERVICE, GROUPED ACCORDING TO RANGE OF PREDICTED DIFFERENCE FOR MILK, SPRING 1977--CONTINUED

					AVERAGE PRODUCTION									
					DAUGHTERS			HERDMATES			PREDICTED DIFFERENCES			
PRED. DIFF. MILK RANGE	SIRES IN GROUP	SIRES IN GROUP	DAUGHTERS W/HM	DAUGHTER RECORDS	MILK	FAT	FAT	MILK	FAT	FAT	MILK	FAT	FAT	$
LB	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
					BROWN SWISS									
+2000 AND UP	1	2.6	63	133	15,184	3.8	580	13,333	4.0	528	+2,207	-.14	+69	+201
+1400 TO +1599	1	2.6	147	296	12,886	4.1	531	11,814	4.0	475	+1,462	+.05	+66	+155
+1200 TO +1399	2	5.1	356	542	14,290	4.1	583	13,434	4.1	549	+1,304	-.05	+46	+124
+1000 TO +1199	3	7.7	1,226	1,910	14,330	3.9	563	13,524	4.0	538	+1,109	-.10	+32	+98
+800 TO +999	5	12.8	269	393	13,533	3.9	522	13,006	3.9	507	+963	-.07	+30	+88
+600 TO +799	6	15.4	401	767	13,366	4.1	547	13,146	4.0	531	+679	.00	+27	+68
+400 TO +599	9	23.1	897	1,781	12,925	4.1	528	12,751	4.1	519	+479	-.01	+18	+47
+200 TO +399	6	15.4	816	1,404	12,933	4.1	527	12,861	4.1	521	+293	-.01	+11	+29
0 TO +199	2	5.1	576	1,298	12,243	4.1	506	12,645	4.0	511	+91	+.06	+11	+17
-199 TO -1	2	5.1	33	59	12,819	4.1	522	13,421	4.2	565	-127	-.06	-12	-20
-599 TO -400	1	2.6	45	47	12,183	4.2	513	13,629	4.0	545	-501	+.11	-8	-37
-799 TO -600	1	2.6	224	339	11,668	4.4	509	13,012	4.1	529	-733	+.26	-1	-43
TOTAL OR SIRE AVERAGE	39	---	5,053	8,969	13,215	4.0	535	13,005	4.0	525	+596	-.02	+22	+58
					MILKING SHORTHORN									
+1200 TO +1399	2	20.0	148	311	13,178	3.7	484	11,790	3.6	428	+1,253	+0.06	+52	+128
+1000 TO +1199	1	10.0	106	152	11,885	3.5	421	11,239	3.6	407	+1,103	-.05	+35	+101
+800 TO +999	1	10.0	20	46	12,109	3.5	429	11,038	3.6	398	+861	-.02	+30	+82
+600 TO +799	2	20.0	130	281	11,177	3.6	405	10,803	3.6	392	+671	.00	+25	+65
+400 TO +599	2	20.0	125	245	10,430	3.7	383	10,250	3.7	381	+467	+.02	+19	+47
+200 TO +399	2	20.0	27	35	10,597	3.6	382	10,549	3.6	384	+341	-.03	+10	+30
TOTAL OR SIRE AVERAGE	10	---	556	1,070	11,476	3.6	416	10,906	3.6	397	+743	.00	+27	+72
AVERAGE PRODUCTION AND PD VALUES FOR ALL SIRES	1,173	---	545,686	1,108,575	15,108	3.8	569	14,893	3.8	564	+558	-.04	+14	+47

TABLE 2. -- AVERAGE PRODUCTION OF MILK AND MILK-FAT OF DAUGHTERS OF SIRES IN ACTIVE AI SERVICE, GROUPED ACCORDING TO RANGE OF PREDICTED DIFFERENCE FOR DOLLARS, SPRING 1977

PRED. DIFF. DOLLAR RANGE	SIRES IN GROUP	SIRES IN GROUP	DAUGHTERS W/HM	DAUGHTER RECORDS	AVERAGE PRODUCTION DAUGHTERS MILK	FAT	FAT	HERDMATES MILK	FAT	FAT	PREDICTED DIFFERENCES MILK	FAT	FAT	$
	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
					AYRSHIRE									
+100 TO +119	3	12.0	801	1,433	12,617	3.8	482	11,714	3.9	455	+1,232	-0 .09	+38	+112
+80 TO +99	2	8.0	146	265	12,970	3.9	504	12,061	3.9	465	+874	+.02	+37	+90
+60 TO +79	3	12.0	1,511	2,970	12,042	3.9	465	11,579	3.9	457	+852	-.11	+21	+72
+40 TO +59	7	28.0	1,717	3,357	11,827	4.0	468	11,710	4.0	465	+501	-.03	+16	+46
+20 TO +39	4	16.0	2,286	4,563	11,766	4.0	468	11,884	3.9	467	+305	+.01	+13	+31
0 TO +19	5	20.0	2,030	4,281	11,296	4.0	450	11,645	3.9	453	+77	+.05	+8	+13
-39 TO -20	1	4.0	601	1,349	10,558	4.1	430	11,325	3.9	444	-502	+.12	-8	-37
TOTAL OR SIRE AVERAGE	25	---	9,052	18,218	11,872	3.9	467	11,722	3.9	460	+504	-.02	+18	+48
					GUERNSEY									
+120 TO +139	3	3.8	223	321	12,048	4.6	555	10,851	4.5	494	+1,202	-.01	+56	+129
+100 TO +119	1	1.3	244	395	11,790	4.4	522	10,717	4.7	500	+1,312	-.25	+35	+113
+80 TO +99	9	11.5	4,974	9,620	11,378	4.6	524	10,706	4.7	500	+911	-.09	+34	+89
+60 TO +79	13	16.7	2,084	3,642	11,465	4.6	522	10,727	4.7	501	+712	-.09	+25	+68
+40 TO +59	15	19.2	2,955	4,758	11,308	4.5	513	10,929	4.6	505	+515	-.06	+18	+49
+20 TO +39	20	25.6	3,471	7,237	11,037	4.6	511	10,829	4.6	502	+306	-.04	+11	+29
0 TO +19	9	11.5	2,678	6,664	10,889	4.7	508	10,960	4.7	516	+122	-.05	+1	+8
-19 TO -1	4	5.1	948	1,364	10,417	4.7	486	10,726	4.7	500	-26	-.02	-3	-5
-39 TO -20	4	5.1	89	102	9,661	4.7	453	10,553	4.7	496	-221	.00	-10	-23
TOTAL OR SIRE AVERAGE	78	---	17,666	34,103	11,129	4.6	512	10,812	4.7	503	+466	-.06	+16	+44
					HOLSTEIN									
+160 TO +179	1	.1	30	51	18,881	3.6	671	16,677	3.6	608	+1,874	-.11	+51	+162
+140 TO +159	7	.8	15,480	35,866	17,066	3.6	613	15,716	3.6	568	+1,674	-.06	+51	+151
+120 TO +139	18	2.0	16,428	26,846	17,545	3.6	629	16,137	3.6	581	+1,441	-.06	+43	+129
+100 TO +119	48	5.3	71,976	170,629	17,010	3.6	614	15,987	3.6	581	+1,218	-.07	+34	+106
+80 TO +99	99	10.9	50,989	89,720	16,725	3.6	604	15,988	3.6	579	+1,015	-.06	+28	+88
+60 TO +79	158	17.4	127,622	277,055	16,578	3.6	597	15,983	3.6	579	+816	-.06	+21	+69
+40 TO +59	183	20.2	83,666	170,048	16,456	3.6	597	16,133	3.6	587	+599	-.05	+14	+49
+20 TO +39	177	19.5	67,968	130,576	15,927	3.6	578	15,910	3.6	580	+383	-.05	+7	+30
0 TO +19	94	10.4	31,765	61,294	15,605	3.6	566	15,895	3.6	579	+183	-.05	0	+11
-19 TO -1	74	8.1	17,529	30,462	15,565	3.6	561	16,261	3.6	590	-1	-.05	-7	-8
-39 TO -20	27	3.0	10,143	18,875	15,393	3.6	554	16,234	3.6	592	-200	-.06	-15	-28
-59 TO -40	13	1.4	927	1,236	14,518	3.6	520	15,900	3.6	569	-442	-.04	-21	-48
-79 TO -60	5	.6	348	497	15,104	3.7	562	16,233	3.7	603	-681	+.01	-24	-65
-99 TO -80	3	.3	2,580	3,350	14,425	3.7	529	15,629	3.7	577	-860	-.04	-37	-89
-139 TO -120	1	.1	46	58	13,536	3.8	517	15,610	3.7	577	-1,448	+.07	-44	-130
TOTAL OR SIRE AVERAGE	908	---	497,497	1,016,563	16,224	3.6	587	16,021	3.6	582	+554	-.06	+12	+45
					JERSEY									
+140 TO +159	2	1.8	122	175	11,178	4.9	552	9,561	5.1	487	+1,454	-.14	+59	+147
+120 TO +139	1	.9	36	72	12,142	4.6	560	11,246	4.9	551	+1,505	-.39	+36	+125
+100 TO +119	7	6.2	950	1,471	11,638	4.8	564	10,920	4.9	535	+1,096	-.14	+41	+107
+80 TO +99	28	24.8	7,656	14,378	11,135	4.9	545	10,605	4.9	522	+934	-.14	+34	+90
+60 TO +79	26	23.0	1,601	3,063	10,555	4.9	521	10,266	4.9	505	+691	-.07	+28	+70
+40 TO +59	26	23.0	2,344	3,839	10,299	4.9	506	10,233	4.9	504	+515	-.09	+18	+49
+20 TO +39	10	8.8	1,914	4,278	10,054	5.0	501	10,276	4.9	507	+322	-.05	+12	+31
0 TO +19	5	4.4	803	1,656	9,840	4.9	481	10,033	5.0	499	+182	-.10	0	+10
-19 TO -1	4	3.5	191	379	9,314	5.1	474	9,525	4.9	462	-188	+.10	-1	-12
-39 TO -20	2	1.8	94	167	9,646	4.8	463	10,522	4.8	510	-206	-.05	-15	-28
-59 TO -40	2	1.8	111	174	9,644	4.8	463	10,259	4.8	490	-420	+.01	-20	-46
TOTAL OR SIRE AVERAGE	113	---	15,822	29,652	10,580	4.9	520	10,348	4.9	509	+635	-.10	+23	+61

TABLE 2. -- AVERAGE PRODUCTION OF MILK AND MILK-FAT OF DAUGHTERS OF SIRES IN ACTIVE AI SERVICE, GROUPED ACCORDING TO RANGE OF PREDICTED DIFFERENCE FOR DOLLARS, SPRING 1977--CONTINUED

					AVERAGE PRODUCTION									
					DAUGHTERS			HERDMATES			PREDICTED DIFFERENCES			
PRED. DIFF. DOLLAR RANGE	SIRES IN GROUP	SIRES IN GROUP	DAUGHTERS W/HM	DAUGHTER RECORDS	MILK	FAT	FAT	MILK	FAT	FAT	MILK	FAT	FAT	$
	NO.	PCT	NO.	NO.	LB	PCT	LB	LB	PCT	LB	LB	PCT	LB	
					BROWN SWISS									
+200 AND UP	1	2.6	63	133	15,184	3.8	580	13,333	4.0	528	+2,207	-.14	+69	+201
+140 TO +159	2	5.1	389	688	13,717	4.2	574	12,845	4.1	526	+1,428	+.03	+62	+149
+100 TO +119	4	10.3	1,393	2,191	13,653	4.0	546	12,922	3.9	510	+1,069	-.02	+40	+104
+80 TO +99	5	12.8	171	239	13,619	3.9	533	13,076	4.0	517	+968	-.09	+28	+86
+60 TO +79	6	15.4	565	956	13,688	4.0	554	13,317	4.0	538	+702	-.03	+25	+67
+40 TO +59	8	20.5	759	1,489	12,867	4.1	526	12,750	4.0	516	+481	.00	+19	+48
+20 TO +39	7	17.9	971	1,910	12,891	4.1	524	12,852	4.1	521	+308	-.01	+11	+29
0 TO +19	2	5.1	440	918	12,641	4.0	509	12,878	4.1	523	+177	-.05	+1	+11
-19 TO -1	1	2.6	18	44	13,085	4.0	527	13,318	4.2	555	-55	-.05	-8	-12
-39 TO -20	2	5.1	60	62	12,368	4.2	515	13,577	4.1	560	-350	+.02	-12	-33
-59 TO -40	1	2.6	224	339	11,668	4.4	509	13,012	4.1	529	-733	+.26	-1	-43
TOTAL OR SIRE AVERAGE	39	---	5,053	8,969	13,215	4.0	535	13,005	4.0	525	+596	-.02	+22	+58
					MILKING SHORTHORN									
+120 TO +139	1	10.0	130	276	11,772	3.8	450	10,923	3.7	407	+1,285	+0.10	+58	+136
+100 TO +119	2	20.0	124	187	13,235	3.5	469	11,948	3.6	428	+1,162	-.03	+40	+110
+80 TO +99	1	10.0	20	46	12,109	3.5	429	11,038	3.6	398	+861	-.02	+30	+82
+60 TO +79	2	20.0	130	281	11,177	3.6	405	10,803	3.6	392	+671	.00	+25	+65
+40 TO +59	2	20.0	125	245	10,430	3.7	383	10,250	3.7	381	+467	+.02	+19	+47
+20 TO +39	2	20.0	27	35	10,597	3.6	382	10,549	3.6	384	+341	-.03	+10	+30
TOTAL OR SIRE AVERAGE	10	---	556	1,070	11,476	3.6	416	10,906	3.6	397	+743	.00	+27	+72
AVERAGE PRODUCTION AND PD VALUES FOR ALL SIRES	1,173	---	545,686	1,108,575	15,108	3.8	569	14,893	3.8	564	+558	-.04	+14	+47

OFFICIAL LACTATION RECORDS RECEIVED BY USDA IN 1975 AND 1976, BY STATE WITH SUMMARY OF ERRORS, CONFLICTS, AND SIRE IDENTIFICATION FOR 1976 [1]

A total of 2,515,217 Official DHI and DHIR lactation records were reported to USDA in 1976 for use in research involving the genetic evaluation of dairy bulls and cows. The number reported for each State is shown in table 1. They include records for the USDA-DHIA Sire Summary runs of Spring 1976, Fall 1976, and Winter 1977 for calendar year 1976.

Records Reported But Not Used in Genetic Evaluation, 1976

Of the 2,515,217 official lactation records submitted to USDA in 1976, the following were not used for genetic evaluation of bulls and cows:

Edit and reason for rejection	Number	Percent of records submitted
Preliminary edit:		
Grade sire number all zeros	1,057,840	42.06
Registered sire number all zeros	3,986	.16
Other invalid data items	62,325	2.48
Main edit:		
Conflicts with another record	137,524	5.47
Total	1,261,675	50.17

Table 2 shows errors and conflicts noted in 1976 rather than the number of records in error. As many as four errors or conflicts or both may be coded for a single record. Table 2 shows that missing identification numbers for sires of grade cows caused rejection of 1,057,840 records. The next most frequent cause of rejection--48,939--was that the cow number was all zeros. Next, with a loss of 48,196 records, was conflicting or questionable birth date.

The records rejected during the main edit are returned to the appropriate processing center for correction.

Increased care in identifying (including the reporting of sire and dam numbers) and reporting all animals in each herd would greatly increase the number of records used for bull and cow evaluation.

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[1] Prepared by Gerald J. King, dairy husbandman, and Evelyn F. Myers, statistical assistant, Animal Improvement Programs Laboratory, Beltsville, Md. 20705.

Sire Identification in Official Lactation Records, 1976, by State

Table 3 shows the numbers and percentages of reported sire numbers that were nonzero and zero for 1976, by State. Some States' year-to-year comparisons may not be appropriate because of large fluctuations in the number of records reported from year to year.

In 1976, missing sire identification (ID) continued to be the main reason why many Official DHI and DHIR records are not useful in sire and cow evaluation.

Summary of Official Lactation Records Received by USDA Since 1957

Table 4 shows a summary of the numbers of official lactation records received since 1957. The number of records received annually has increased from just over one-half of a million in 1957 to over 2-1/2 million in 1976. The percentage of Official DHI and DHIR cows represented has increased from 38.2 percent in 1957 to 103.2 percent in 1976, when 2,438,365 cows were enrolled and 2,515,217 records were received. Percentages exceeding 100 are possible because of varying reporting and processing procedures.

Table 4 also shows the trend between 1969 and 1976 in percentage of Official DHI and DHIR lactations reported to USDA with missing sire ID, losses due to other errors found in editing, and the number of records used. There was a decrease in the proportion of cows without sire ID this year, and there is a continuing increase in the number of records that contain valid sire ID for use in genetic evaluation.

TABLE 1.-- LACTATION RECORDS RECEIVED BY USDA IN 1975 AND 1976 FOR BULL AND COW EVALUATION 1/

STATE	1975 LACTATION RECORDS			1976 LACTATION RECORDS		
	OFFICIAL DHI AND DHIR COWS ON TEST 1-1-75	RECEIVED	PERCENTAGE OF COWS ENROLLED IN OFFICIAL DHI AND DHIR 2/	OFFICIAL DHI AND DHIR COWS ON TEST 1-1-76	RECEIVED	PERCENTAGE OF COWS ENROLLED IN OFFICIAL DHI AND DHIR 2/
	NO.	NO.		NO.	NO.	
ALABAMA----------	28,744	23,572	82.0	27,627	25,500	92.3
ALASKA-----------	44	44	100.0	67	69	103.0
ARIZONA----------	32,170	32,502	101.0	31,820	36,290	114.0
ARKANSAS---------	7,053	7,959	112.8	7,030	8,348	118.7
CALIFORNIA-------	359,834	362,190	100.7	354,614	375,630	105.9
COLORADO---------	24,633	23,903	97.0	23,785	25,038	105.3
CONNECTICUT------	22,174	22,972	103.6	23,217	21,724	93.6
DELAWARE---------	3,226	3,542	109.8	3,171	3,689	116.3
FLORIDA----------	17,878	24,568	137.4	15,817	15,462	97.8
GEORGIA----------	33,317	31,888	95.7	32,631	31,797	97.4
HAWAII-----------	5,444	4,072	74.8	3,994	4,167	104.3
IDAHO------------	31,097	26,194	84.2	31,920	30,182	94.6
ILLINOIS---------	58,049	62,770	108.1	59,424	58,297	98.1
INDIANA----------	45,414	41,250	90.8	46,757	47,101	100.7
IOWA-------------	68,542	76,627	111.8	68,811	78,978	114.8
KANSAS-----------	47,025	50,944	108.3	43,950	48,887	111.2
KENTUCKY---------	25,552	22,016	86.2	24,849	23,549	94.8
LOUISIANA--------	28,503	23,791	83.5	29,370	26,935	91.7
MAINE------------	18,440	20,930	113.5	20,616	21,232	103.0
MARYLAND---------	47,968	45,955	95.8	48,461	47,491	98.0
MASSACHUSETTS----	17,102	19,798	115.8	18,188	19,663	108.1
MICHIGAN---------	87,636	149,139	170.2	89,408	94,927	106.2
MINNESOTA--------	152,364	159,005	104.4	152,417	168,935	110.8
MISSISSIPPI------	22,032	17,219	78.2	21,778	20,118	92.4
MISSOURI---------	41,102	45,388	110.4	39,979	47,218	118.1
MONTANA----------	5,005	4,834	96.6	5,804	3,684	63.5
NEBRASKA---------	26,221	28,130	107.3	24,442	28,406	116.2
NEVADA-----------	7,749	6,962	89.8	6,696	6,818	101.8
NEW HAMPSHIRE----	10,581	12,217	115.5	11,285	11,808	104.6
NEW JERSEY-------	16,296	17,396	106.8	16,345	16,388	100.3
NEW MEXICO-------	13,079	19,855	151.8	15,151	18,404	121.5
NEW YORK---------	191,286	192,343	100.6	190,257	196,414	103.2
NORTH CAROLINA---	58,207	52,777	90.7	58,196	57,666	99.1
NORTH DAKOTA-----	6,701	7,613	113.6	6,273	7,179	114.4
OHIO-------------	88,011	84,924	96.5	86,842	86,025	99.1
OKLAHOMA---------	26,370	28,223	107.0	24,038	27,319	113.6
OREGON-----------	37,328	30,575	81.9	35,675	35,375	99.2
PENNSYLVANIA-----	166,167	160,750	96.7	169,723	165,028	97.2
PUERTO RICO------	(3/)	0	0	17,731	15,108	85.2
RHODE ISLAND-----	1,324	1,377	104.0	1,038	1,112	107.1
SOUTH CAROLINA---	29,664	25,369	85.5	29,752	28,836	96.9
SOUTH DAKOTA-----	10,262	11,439	111.5	9,748	10,601	108.8
TENNESSEE--------	38,474	33,325	86.6	40,279	38,062	94.5
TEXAS------------	40,055	31,817	79.4	37,527	36,509	97.3
UTAH-------------	33,008	32,104	97.3	31,924	32,314	101.2
VERMONT----------	42,741	43,901	102.7	41,633	42,653	102.4
VIRGINIA---------	73,139	66,119	90.4	75,774	74,662	98.5
WASHINGTON-------	64,620	57,544	89.0	68,277	67,706	99.2
WEST VIRGINIA----	12,016	13,611	113.3	12,542	12,343	98.4
WISCONSIN--------	191,057	180,267	94.4	198,807	210,652	106.0
WYOMING----------	2,304	3,155	136.9	2,905	2,918	103.3
UNITED STATES----	2,417,008	2,444,865	101.2	2,438,365	2,515,217	103.2

1/ LACTATION RECORD INPUT FOR USDA-DHIA SIRE SUMMARY RUNS FOR MAY 1975, SEPTEMBER 1975, AND JANUARY 1976 FOR CALENDAR YEAR 1975 AND FOR MAY 1976, SEPTEMBER 1976, AND JANUARY 1977 FOR CALENDAR YEAR 1976.

2/ PERCENTAGES VARY BY STATE AND MAY EXCEED 100 PERCENT DEPENDING ON YEAR-TO-YEAR REPORTING AND PROCESSING PROCEDURES.

3/ NOT INCLUDED WERE 15,953 COWS ON OFFICIAL DHI TESTING IN PUERTO RICO.

TABLE 2.--RELATIVE FREQUENCY OF ERRORS OR CONFLICTS IN OFFICIAL LACTATION RECORDS REPORTED TO USDA IN 1976 1/

PRELIMINARY EDIT	MAIN EDIT 2/ 3/ 4/ CODE	ERRORS OR CONFLICTS	NUMBER OF ERRORS OR CONFLICTS	PERCENTAGE OF ERRORS OR CONFLICTS	PERCENTAGE OF RECORDS REPORTED
GRADE		SIRE NUMBER ALL ZEROS	1,057,840	82.55	42.06
REGISTERED		COW NUMBER ALL ZEROS	48,939	3.82	1.96
	B	CONFLICTING OR QUESTIONABLE BIRTH DATE	48,196	3.81	1.92
	A 5/	CONFLICT WITH INFORMATION PREVIOUSLY REPORTED	28,795	2.25	1.14
	F	CONFLICTING OR QUESTIONABLE CALVING DATE	25,169	1.96	1.00
	D	CONFLICTING OR QUESTIONABLE DAM NUMBER	11,025	.86	.44
	S	CONFLICTING OR QUESTIONABLE SIRE NUMBER	10,144	.79	.40
	C 5/	CONFLICTING OR QUESTIONABLE COW NUMBER	8,995	.70	.36
	P	CONFLICTING OR QUESTIONABLE FAT PERCENT	5,866	.46	.23
REGISTERED		DAM NUMBER ALL ZEROS	5,040	.39	.20
REGISTERED		COW BREED ZERO 4/	4,362	.34	.17
REGISTERED		SIRE NUMBER ALL ZEROS	3,986	.31	.16
	M	CONFLICTING OR QUESTIONABLE MILK POUNDS	2,860	.22	.11
REGISTERED/GRADE		SIRE BREED ZERO 4/	2,108	.16	.08
	D	CONFLICTING OR QUESTIONABLE FAT POUNDS	1,932	.15	.08
REGISTERED		COW AND SIRE BREED UNEQUAL	1,911	.15	.08
REGISTERED		COW AND DAM BREED UNEQUAL	1,909	.15	.08
	J	EQUAL IDENTIFICATION NUMBER FOR TWO OR MORE OF THE ANIMALS IN THE PEDIGREE	1,740	.14	.07
REGISTERED/GRADE		DAYS IN MILK ZERO	1,271	.10	.05
	I	INVALID CHARACTERS--USUALLY BLANKS OR ALPHABETICS	1,237	.10	.05
REGISTERED/GRADE		BLANKS IN ANY POSITION OF RECORD	1,173	.09	.05
REGISTERED/GRADE		DAM BREED ZERO OR BLANK 4/	1,173	.09	.05
	G	INVALID STATE CODE	1,069	.08	.04
REGISTERED		DAM NUMBER ALPHABETIC	754	.06	.03
	N	CONFLICTING OR QUESTIONABLE DAYS IN MILK	687	.05	.03
GRADE		EARTAG COW BREED "NON-EIGHT", SIRE BREED UNEQUAL	665	.05	.03
REGISTERED/GRADE		ALPHA IN HIGH-ORDER 2 POSITIONS OF COW NUMBER	537	.04	.02
REGISTERED		COW NUMBER ALPHABETIC	478	.04	.02
REGISTERED		COW BREED "EIGHT"	361	.03	.01
REGISTERED		SIRE NUMBER ALPHABETIC	230	.02	.01
GRADE		EARTAG COW BREED "EIGHT", "NON-EIGHT" SIRE AND DAM EQUAL	219	.02	.01
	E	CONFLICTING OR QUESTIONABLE BREED CODE	185	.01	.01
REGISTERED		SIRE NUMBER IS AN EARTAG	141	.01	.01
REGISTERED/GRADE		ALPHA IN HIGH-ORDER 2 POSITIONS OF SIRE NUMBER	135	.01	.01
REGISTERED/GRADE		ALPHA IN HIGH-ORDER 2 POSITIONS OF DAM NUMBER	128	.01	.01
REGISTERED/GRADE		DAYS IN MILK BLANK	84	.01	(6/)
REGISTERED/GRADE		J THROUGH Z IN TERMINATION CODE	59	(6/)	(6/)
	L	DAYS MILKED 3X EXCEEDS TOTAL DAYS MILKED	1	(6/)	(6/)
TOTAL OR PERCENT OF ERRORS/CONFLICTS			1,281,402	100.03	6/ 50.98

1/ TOTAL LACTATION RECORDS REPORTED = 2,515,217; TOTAL LACTATION RECORDS REJECTED = 1,261,675.

2/ CONDITIONS USING THESE CODES WERE DISCOVERED IN THE MAIN EDIT AND WERE RECORDED ON THE ERROR TAPES RETURNED TO THE PROCESSING CENTERS. ALL OTHERS WERE DISCOVERED IN THE PRELIMINARY EDIT.

3/ DETAILED EXPLANATIONS OF THE MAIN EDIT REJECT CODES ARE IN DECEMBER 1970 DAIRY HERD IMPROVEMENT LETTER, ARS 44-222.

4/ BUT A NONZERO ID NUMBER. 5/ AN ADDITIONAL 3,413 RECORDS WERE DELETED FROM THE MASTER FILE BECAUSE OF CONFLICTS WITH CURRENT RECORDS.

6/ PERCENTAGE LESS THAN 0.01. MOST VALUES OF 0.01 ARE ROUNDED FROM 0.0050 - 0.0099. PERCENTAGE OF 50.98 IS SUM OF INDIVIDUAL PERCENTAGES.

TABLE 3.--SIRE IDENTIFICATION IN OFFICIAL LACTATION RECORDS 1976, BY STATE

STATE	NONZERO SIRE NUMBERS	PERCENTAGE OF ALL RECORDS RECEIVED	ZERO SIRE NUMBERS GRADE	ZERO SIRE NUMBERS REGISTERED	ZERO SIRE NUMBERS TOTAL	PERCENTAGE OF ALL RECORDS RECEIVED
	NO.		NO.	NO.	NO.	
ALABAMA----------	8,194	32.1	17,306	0	17,306	67.8
ALASKA-----------	69	100.0	0	0	0	0
ARIZONA----------	13,427	36.9	22,740	123	22,863	63.0
ARKANSAS---------	5,095	61.0	3,253	0	3,253	68.9
CALIFORNIA-------	172,974	46.0	202,311	345	202,656	53.9
COLORADO---------	14,265	56.9	10,683	90	10,773	43.0
CONNECTICUT------	15,000	69.0	6,723	1	6,724	30.9
DELAWARE---------	2,639	71.5	1,050	0	1,050	28.4
FLORIDA----------	6,125	39.6	9,321	16	9,337	60.3
GEORGIA----------	11,368	35.7	20,429	0	20,429	64.2
HAWAII-----------	258	6.6	3,892	17	3,909	93.8
IDAHO------------	12,206	40.4	17,968	8	17,976	59.6
ILLINOIS---------	38,227	65.6	19,881	189	20,070	34.4
INDIANA----------	28,389	60.3	18,710	2	18,712	39.7
IOWA-------------	47,364	60.0	31,614	0	31,614	40.0
KANSAS-----------	28,931	59.2	19,954	2	19,956	40.8
KENTUCKY---------	11,592	49.2	11,957	0	11,957	50.8
LOUISIANA--------	10,760	40.0	16,175	0	16,175	63.1
MAINE------------	16,337	76.9	4,887	8	4,895	42.3
MARYLAND---------	38,520	81.1	8,811	160	8,971	18.9
MASSACHUSETTS----	13,202	67.1	6,460	1	6,461	32.8
MICHIGAN---------	52,578	55.4	42,302	47	42,349	44.6
MINNESOTA--------	104,645	61.9	64,286	4	64,290	38.1
MISSISSIPPI------	6,793	33.8	13,325	0	13,325	66.2
MISSOURI---------	26,369	55.8	20,849	0	20,849	44.2
MONTANA----------	2,857	77.6	794	33	827	22.4
NEBRASKA---------	14,228	50.1	14,176	2	14,178	49.9
NEVADA-----------	3,691	54.1	3,117	10	3,127	45.9
NEW HAMPSHIRE----	9,201	77.9	2,607	0	2,607	22.1
NEW JERSEY-------	11,555	70.5	4,833	0	4,833	29.5
NEW MEXICO-------	12,108	65.8	6,282	14	6,296	34.2
NEW YORK---------	145,512	74.1	50,886	16	50,902	25.9
NORTH CAROLINA---	28,396	49.2	29,266	4	29,270	50.8
NORTH DAKOTA-----	4,346	60.5	2,833	0	2,833	39.5
OHIO-------------	55,360	64.4	30,451	214	30,665	35.6
OKLAHOMA---------	11,844	43.4	15,474	1	15,475	56.6
OREGON-----------	16,899	47.8	18,414	62	18,476	52.2
PENNSYLVANIA-----	131,094	79.4	33,683	251	33,934	20.6
PUERTO RICO------	1,534	10.2	13,574	0	13,574	89.8
RHODE ISLAND-----	764	68.7	348	0	348	31.3
SOUTH CAROLINA---	12,318	42.7	16,513	5	16,518	57.3
SOUTH DAKOTA-----	5,791	54.6	4,810	0	4,810	45.4
TENNESSEE--------	15,548	40.8	22,514	0	22,514	59.2
TEXAS------------	17,662	48.4	18,809	38	18,847	51.6
UTAH-------------	15,322	47.4	16,946	46	16,992	52.6
VERMONT----------	31,720	74.4	10,933	0	10,933	25.6
VIRGINIA---------	44,914	60.2	29,747	1	29,748	39.8
WASHINGTON-------	29,602	43.7	38,074	30	38,104	56.3
WEST VIRGINIA----	7,885	63.9	4,457	1	4,458	36.1
WISCONSIN--------	135,711	64.4	72,744	2,197	74,941	35.6
WYOMING----------	2,202	75.5	668	48	716	24.5
UNITED STATES----	1,453,391	57.8	1,057,840	3,986	1,061,826	42.2

TABLE 4.--SUMMARY OF OFFICIAL LACTATION RECORDS RECEIVED BY USDA SINCE 1957 1/

YEAR	OFFICIAL DHI AND DHIR COWS ENROLLED ON JAN. 1 EACH YEAR	LACTATION RECORDS RECEIVED BY USDA	OFFICIAL DHI AND DHIR COWS REPRESENTED BY RECORDS REPORTED	LACTATIONS REPORTED WITH ZERO SIRE NUMBER		LACTATIONS REJECTED BY OTHER ERRORS		LACTATION RECORDS USED	
	NO.	NO.	PCT	NO.	PCT	NO.	PCT	NO.	PCT
1957--	1,479,799	565,360	38.2						
1958--	1,548,884	786,496	50.8						
1959--	1,607,538	927,998	57.7						
1960--	1,746,752	886,495	50.8						
1961--	1,867,469	1,084,799	58.1						
1962--	1,958,355	1,211,407	61.9						
1963--	2,006,534	1,320,423	65.8						
1964--	2,010,144	1,437,959	71.5						
1965--	2,087,581	1,749,752	83.8						
1966--	2,058,592	1,788,974	86.9						
1967--	2,098,919	1,851,274	88.2						
1968--	2,131,929	1,916,831	89.9						
1969--	2,138,953	1,870,276	87.4	803,926	42.98	65,978	3.52	1,000,372	53.50
1970--	2,122,011	1,907,042	89.9	782,474	41.03	67,032	3.51	1,057,536	55.46
1971--	2,211,366	2,066,743	93.2	852,605	41.25	79,203	3.83	1,134,935	54.92
1972--	2,237,649	2,143,259	95.8	899,087	41.95	76,571	3.57	1,167,601	54.48
1973--	2,349,211	2,417,721	102.9	1,044,785	43.21	94,848	3.92	1,278,088	52.86
1974--	2,404,158	2,498,687	103.9	1,099,748	44.01	(2/)	(2/)	(2/)	(2/)
1975--	2,417,008	2,444,865	101.2	1,058,224	43.28	196,200	8.02	1,190,441	48.69
1976--	2,438,365	2,515,217	103.2	1,061,826	42.22	199,849	7.95	1,253,542	49.84

1/ RECORDS FROM PUERTO RICO NOT INCLUDED BEFORE 1976.
2/ MAIN EDIT NOT RUN IN JANUARY 1975, SO FIGURES ARE NOT AVAILABLE.

U. S. DEPARTMENT OF AGRICULTURE
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Dairy Herd Improvement Letter

Vol. 55, No. 2

December 1979

NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

Summary of Cow Herd Average Records, 1978-79

U.S. Department of Agriculture
Science and Education Administration

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Dairy Herd Improvement Letter

NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

STATE AND NATIONAL SUMMARY OF COW HERD AVERAGE RECORDS, 1978-79 [1]

1978-79 Official Cow Averages - 14,644 Lb Milk, 542 Lb Fat
1978-79 Nonofficial Cow Averages - 13,847 Lb Milk, 522 Lb Fat

This Letter contains State and national cow-year averages based on herd averages for milk and fat production, feed, feed cost, and milk value for the 1978-79 National Cooperative Dairy Herd Improvement Program's (NCDHIP) test year (May 1, 1978, to April 30, 1979). These averages are for the official and nonofficial plans of the NCDHIP. [2] Records in the Milk-Only-Record and the Weigh-a-Day-a-Month plans, although an important part of the NCDHIP, are not included in the data because fat sampling is not done. The Dairy Records Processing Centers send the 12-month rolling herd averages to the Animal Improvement Programs Laboratory (AIPL) for all herds that have completed a 12-month testing period within the national test year. Herd and cow numbers and record values quoted in State newsletters may vary from the numbers and values presented in this Letter because many State test years end at times other than April 30.

Milk and fat data as well as averages for feed, cost, and income are presented on a subset of the herd records (called "complete" records) in addition to milk and fat data for all herds, because feed, cost, and income data are not provided for all herds.

The records are edited in the AIPL to avoid duplication, to restrict data to the correct test year, and to keep items of herd data within the edit limits. The edit limits for all data items are available on request. During the 1978-79 test year, 91 percent of the herds and 92 percent of the cows enrolled in official plans on January 1, 1979, were included in the production averages. The fact that fewer herds are included here than were enrolled is due to editing on herd size and production and the fact that herds have to be on test for 12 months before being included. Herds are not included if they have fewer than five cows or average less than 4,000 pounds of milk. As herds come on test (there are 1,048 more herds on official test this year than last), they may be counted on January 1, but not be on test 12 months by April 30. Only 52 percent of the herds and 47 percent of the cows enrolled in official plans were included as valid complete records.

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[1] Prepared by Gerald J. King, dairy husbandman, George R. Wiggans, research geneticist, Barbara R. Wood, computer technician, and Evelyn F. Myers, statistical assistant, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, MD 20705, and Michael Grossman, research geneticist, on leave from the University of Illinois at Urbana-Champaign, Urbana, IL.

[2] Official plans included are Official DHI, DHIR, Official DHI AM-PM with Monitoring Device, and Official DHI with Alternate AM-PM Component Sampling (the American Jersey Cattle Club and the Brown Swiss Cattle Breeders' Association accept the last as a part of their DHIR plan). Nonofficial plans included are Alternate AM-PM, Bimonthly, Commercial, Owner-Sampler, O-S/AM-PM, and Trimonthly.

1978-79 official averages.--Table 1 shows that in the 1978-79 test year, 2,571,361 cow-years in 32,831 herds on official test averaged 14,644 pounds of milk and 542 pounds of fat. The number of cows per herd averaged 78. Fat percent was 3.70, and average percent days in milk was 86, the same as last year. The increase over last year in the official production averages was only 13 pounds of milk and 0 pound of fat. This is the first time in 5 years that production has shown either a decrease or only a negligible increase. Perhaps the primary reason why virtually no production increase was seen this year was that 72.5 percent of the increase in cow-years was accompanied by changes in average production of from +31 pounds to -630 pounds for all cows in the States represented. These extremes appeared in the two States with the greatest increase in cow numbers. California had 24,132.2 more cow-years, and the milk average for all cow-years from California was 630 pounds less than last year. Wisconsin had 24,933.8 more cow-years, and the milk average for all cow-years from Wisconsin was only 31 pounds more than last year.

The average increase of a year before was 196 pounds of milk. This is partly because, with one exception, the States that accounted for the lack of increase in 1978-79 contributed to the increase in 1977-78, and several other States with high increases in cow numbers in 1978-79 had greater increases in cow numbers and milk production averages in 1977-78.

Tables 2 and 3 include national totals for herds and cow-years and cow-year averages from official herd records by breed for six breeds plus mixed and other breeds. The averages are stratified by milk production level and herd size, respectively.

Many larger herds do not appear in the summary of complete records (table 4), because only production data were reported. Average value of production was $1,555, and feed cost was $629, so that income over feed cost was $926, an increase over last year of $134.

Tables 5 and 6 include national totals for herds and cow-years and cow-year averages for complete official records for six breeds plus mixed and other breeds, stratified by level of milk production and herd size, respectively.

1978-79 nonofficial averages.--In the 1978-79 test year, 933,631 cow-years in 19,248 herds on the nonofficial testing plans averaged 13,847 pounds of milk and 522 pounds of fat (table 7).

Summaries of nonofficial herd records of the 1978-79 test year are shown in tables 7-12. States are not listed if they did not report nonofficial records.

Calculation of averages other than production.--Although the records included in tables 4, 5, 6, 10, 11, and 12 are complete, some records omit days in milk, and the total ration often does not include all feeds available. Therefore, the averages for days in milk, each feedstuff, cost, and value of product have been calculated by using only the cow-years of herds for which information was reported. So, in many instances, the averages printed are representative of fewer cow-years than the number listed.

Superiority of tested cows.--Table 17 shows the production levels of cows on official test compared with all cows not on test. Cows on official test now have a superiority of 5,039 pounds of milk each over cows not on test, an increase of 56 pounds over last year, whereas cows on nonofficial test show a superiority of 4,179 pounds over cows not on test, an increase of 92 pounds over last year.

Historical summaries of testing plans.--Tables 13-18 show summary data for various periods for cows on official test, cows on nonofficial test, and all cows nationally. Tables 13 and 15 (both new) include the milk and fat production for all cows reported for official and nonofficial plans, respectively. These summaries have also been included with enrollment figures in the annual Participation Reports.

STATE AND NATIONAL SUMMARY OF GOAT HERD AVERAGE RECORDS, 1978-79

1978-79 Official Goat Averages - 1,616 Lb Milk, 60 Lb Fat

Dairy goat husbandry is of growing importance to small farm animal agriculture. Therefore, this Letter also contains State and national summaries of dairy goat herd averages for milk and fat production for the 1978-79 NCDHIP test year for official plans. This is the first time that doe-year averages based on herd averages are included in the summary. The tables of summaries include those herds having 40 percent or more days in milk and 500 pounds or more of milk. In the 1978-79 test year, 10,536 doe-years in 958 herds on official test averaged 1,616 pounds of milk and 60 pounds of fat. The average number of does per herd was 11 (table 19).

Table 20 presents the national distribution of herds for doe-years per herd, percent days in milk, pounds of milk, and pounds of fat.

These data cannot be presented by breeds, because about 70 percent of the herds reported to the AIPL are not identified by breed. Sixty-three percent are coded as crossbred; seven percent are coded as unknown breed.

Erratum

The information published for Indiana in Dairy Herd Improvement Letter, Volume 55, No. 1, Table 7, was incorrect. The herds are nonofficial. The data have been included in the tables for nonofficial data in this Letter.

TABLE 1.--STATE AND NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL OFFICIAL HERD RECORDS, MAY 1, 1978 - APRIL 30, 1979

STATE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
ALABAMA----------	196	24,503.4	125.0	85	12,953	3.63	470
ALASKA-----------	2	70.9	35.5	79	12,188	3.71	452
ARIZONA----------	98	40,092.2	409.1	86	15,322	3.65	560
ARKANSAS---------	85	4,937.9	58.1	84	13,333	3.54	472
CALIFORNIA-------	1,110	381,470.9	343.7	85	16,031	3.67	588
COLORADO---------	204	23,178.3	113.6	85	15,129	3.56	539
CONNECTICUT------	282	21,770.9	77.2	86	15,031	3.76	565
DELAWARE---------	50	3,923.4	78.5	87	14,811	3.65	541
FLORIDA----------	42	10,707.1	254.9	86	12,168	3.52	428
GEORGIA----------	257	30,451.4	118.5	85	13,454	3.69	496
HAWAII-----------	10	4,275.5	427.6	83	13,556	3.25	440
IDAHO------------	361	34,505.5	95.6	85	14,610	3.63	530
ILLINOIS---------	1,029	55,517.2	54.0	85	13,962	3.75	523
INDIANA----------	805	46,796.2	58.1	86	14,125	3.81	538
IOWA-------------	1,464	69,580.8	47.5	85	13,281	3.72	494
KANSAS-----------	644	40,780.2	63.3	84	13,816	3.61	499
KENTUCKY---------	403	25,047.3	62.2	84	12,767	3.70	473
LOUISIANA--------	289	29,274.7	101.3	84	11,654	3.58	417
MAINE------------	375	20,847.7	55.6	87	14,712	3.66	539
MARYLAND---------	553	46,152.8	83.5	86	14,515	3.71	539
MASSACHUSETTS----	268	16,461.8	61.4	86	14,657	3.73	547
MICHIGAN---------	1,297	95,758.0	73.8	87	15,251	3.72	567
MINNESOTA--------	3,645	175,442.5	48.1	87	14,203	3.73	530
MISSISSIPPI------	216	20,885.3	96.7	85	12,346	3.63	448
MISSOURI---------	631	40,603.4	64.3	84	13,272	3.65	484
MONTANA----------	67	5,136.4	76.7	86	14,028	3.58	502
NEBRASKA---------	390	25,766.5	66.1	84	13,058	3.65	476
NEVADA-----------	38	7,409.2	195.0	85	14,656	3.38	495
NEW HAMPSHIRE----	187	11,313.1	60.5	86	14,535	3.77	548
NEW JERSEY-------	200	14,455.0	72.3	86	14,653	3.76	551
NEW MEXICO-------	39	20,311.0	520.8	84	15,654	3.50	548
NEW YORK---------	2,941	191,687.4	65.2	87	15,296	3.70	566
NORTH CAROLINA---	580	59,473.2	102.5	87	14,707	3.57	525
NORTH DAKOTA-----	101	6,039.9	59.8	83	12,795	3.63	465
OHIO-------------	1,440	84,067.3	58.4	87	14,915	3.72	555
OKLAHOMA---------	233	17,944.2	77.0	84	14,222	3.67	522
OREGON-----------	361	39,303.0	108.9	86	14,632	3.84	562
PENNSYLVANIA-----	3,283	182,017.3	55.4	86	14,734	3.78	557
PUERTO RICO------	91	20,584.0	226.2	79	8,938	2.98	266
RHODE ISLAND-----	25	1,298.4	51.9	86	14,208	3.65	518
SOUTH CAROLINA---	209	27,893.1	133.5	86	13,020	3.88	505
SOUTH DAKOTA-----	182	10,476.5	57.6	84	13,271	3.68	488
TENNESSEE--------	500	43,917.3	87.8	85	13,489	3.83	516
TEXAS------------	407	49,510.1	121.6	85	14,029	3.59	504
UTAH-------------	286	26,767.9	93.6	87	15,777	3.47	548
VERMONT----------	801	45,954.2	57.4	86	14,244	3.73	532
VIRGINIA---------	858	77,471.2	90.3	86	14,459	3.63	525
WASHINGTON-------	650	79,536.4	122.4	86	15,677	3.66	574
WEST VIRGINIA----	163	12,201.4	74.9	86	13,982	3.64	509
WISCONSIN--------	4,447	244,709.3	55.0	87	14,890	3.82	569
WYOMING----------	36	3,081.9	85.6	84	13,248	3.44	456
UNITED STATES----	32,831	2,571,360.5	78.3	86	14,644	3.70	542

TABLE 2.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL OFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL,
MAY 1, 1978 - APRIL 30, 1979

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
			AYRSHIRE				
6,500 - 7,499---	4	297.7	74.4	82	7,077	4.18	296
7,500 - 8,499---	7	312.5	44.6	79	7,998	4.01	321
8,500 - 9,499---	24	1,028.0	42.8	81	9,044	3.97	359
9,500 - 10,499---	48	2,349.3	48.9	83	10,120	4.01	406
10,500 - 11,499---	77	3,287.7	42.7	84	11,030	3.93	434
11,500 - 12,499---	80	3,244.8	40.6	84	11,991	3.94	473
12,500 - 13,499---	71	3,661.8	51.6	86	12,976	3.98	516
13,500 - 14,499---	37	1,716.1	46.4	86	13,920	3.96	551
14,500 - 15,499---	24	1,067.4	44.5	86	14,928	3.93	587
15,500 - 16,499---	7	169.7	24.2	87	15,807	3.81	603
TOTAL OR AVG.----ALL REC.--	379	17,135.0	45.2	84	11,839	3.96	469
			GUERNSEY				
LESS THAN 6,500---	6	141.5	23.6	85	5,745	4.91	282
6,500 - 7,499---	20	790.8	39.5	81	7,166	4.59	329
7,500 - 8,499---	69	3,265.2	47.3	84	8,084	4.66	377
8,500 - 9,499---	126	6,471.7	51.4	85	9,094	4.63	421
9,500 - 10,499---	227	12,529.6	55.2	86	10,042	4.67	469
10,500 - 11,499---	256	15,386.9	60.1	86	10,979	4.65	511
11,500 - 12,499---	185	10,557.4	57.1	87	11,948	4.67	558
12,500 - 13,499---	97	5,946.6	61.3	88	12,945	4.59	594
13,500 - 14,499---	29	1,526.4	52.6	88	13,878	4.60	639
14,500 - 15,499---	9	712.1	79.1	89	14,956	4.48	670
15,500 - 16,499---	4	248.9	62.2	90	15,642	4.42	691
TOTAL OR AVG.----ALL REC.--	1,028	57,577.1	56.0	86	10,858	4.64	504
			HOLSTEIN				
LESS THAN 6,500---	16	1,845.5	115.3	82	5,887	3.23	190
6,500 - 7,499---	33	3,775.8	114.4	79	6,996	3.17	222
7,500 - 8,499---	92	8,859.5	96.3	78	7,996	3.34	267
8,500 - 9,499---	248	17,575.5	70.9	80	9,097	3.55	323
9,500 - 10,499---	506	36,712.9	72.6	81	10,050	3.57	359
10,500 - 11,499---	1,062	72,713.1	68.5	83	11,040	3.65	403
11,500 - 12,499---	2,054	140,112.2	68.2	84	12,049	3.66	441
12,500 - 13,499---	3,326	242,566.4	72.9	85	13,044	3.66	478
13,500 - 14,499---	4,739	347,960.0	73.4	86	14,034	3.67	515
14,500 - 15,499---	5,346	434,696.8	81.3	86	14,992	3.66	548
15,500 - 16,499---	4,866	421,220.8	86.6	86	15,978	3.66	584
16,500 - 17,499---	3,310	295,977.2	89.4	87	16,946	3.63	615
17,500 - 18,499---	1,787	166,969.0	93.4	87	17,934	3.61	648
18,500 - 19,499---	708	72,296.2	102.0	87	18,964	3.59	680
19,500 - 20,499---	246	24,872.1	101.1	88	19,953	3.57	713
20,500 - 21,499---	78	6,455.3	82.8	88	20,869	3.55	740
21,500 - 22,499---	20	2,682.3	134.1	89	21,881	3.57	781
22,500 - 23,499---	5	207.7	41.5	88	22,933	3.58	821
23,500 - 24,499---	2	185.4	92.7	92	23,685	3.50	828
TOTAL OR AVG.----ALL REC.--	28,444	2,297,683.7	80.8	86	15,014	3.64	547
			JERSEY				
LESS THAN 6,500---	23	842.2	36.6	80	5,749	4.99	287
6,500 - 7,499---	46	2,439.2	53.0	81	7,044	4.73	333
7,500 - 8,499---	127	7,771.0	61.2	83	8,124	4.90	398
8,500 - 9,499---	242	15,791.1	65.3	85	9,050	4.92	445
9,500 - 10,499---	320	21,715.9	67.9	86	10,021	4.88	489
10,500 - 11,499---	293	24,188.3	82.6	86	10,968	4.91	538
11,500 - 12,499---	146	11,663.7	79.9	87	11,878	4.90	582
12,500 - 13,499---	48	4,229.8	88.1	87	12,812	4.85	622
13,500 - 14,499---	10	606.1	60.6	89	13,936	4.96	691
14,500 - 15,499---	3	173.6	57.9	88	15,253	4.90	747
15,500 - 16,499---	1	27.6	27.6	90	15,562	4.83	752
TOTAL OR AVG.----ALL REC.--	1,259	89,448.5	71.0	86	10,231	4.90	501
			BROWN SWISS				
LESS THAN 6,500---	2	113.8	56.9	73	5,047	4.04	204
6,500 - 7,499---	2	127.8	63.9	81	7,058	4.02	284
7,500 - 8,499---	17	705.6	41.5	82	8,171	3.99	326
8,500 - 9,499---	18	960.8	53.4	84	9,125	4.16	380
9,500 - 10,499---	39	1,601.4	41.1	84	10,070	4.04	407
10,500 - 11,499---	103	4,292.8	41.7	84	11,024	4.05	446
11,500 - 12,499---	103	4,450.4	43.2	85	12,042	4.06	489
12,500 - 13,499---	90	5,581.9	62.0	86	12,978	4.05	525
13,500 - 14,499---	70	3,308.1	47.3	87	13,986	3.98	557
14,500 - 15,499---	29	1,968.6	67.9	87	14,999	4.02	603
15,500 - 16,499---	12	738.5	61.5	87	15,859	4.05	643
16,500 - 17,499---	5	284.6	56.9	89	17,009	4.08	694
17,500 - 18,499---	3	112.4	37.5	89	18,226	3.88	707
TOTAL OR AVG.----ALL REC.--	493	24,246.7	49.2	85	12,368	4.04	500

TABLE [illegible]--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL OFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL, MAY 1, 1978 - APRIL 30, 1979--CON.

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
MILKING SHORTHORN							
LESS THAN 6,500---	1	29.2	29.2	76	5,347	3.46	185
6,500 - 7,499---	1	60.1	60.1	81	7,178	3.72	267
7,500 - 8,499---	5	124.5	24.9	78	8,160	3.69	301
8,500 - 9,499---	11	396.7	36.1	82	8,946	3.76	336
9,500 - 10,499---	12	391.5	32.6	82	10,076	3.66	369
10,500 - 11,499---	15	549.7	36.6	83	10,847	3.65	396
11,500 - 12,499---	13	391.2	30.1	83	11,933	3.54	422
12,500 - 13,499---	3	111.2	37.1	83	12,943	3.65	472
13,500 - 14,499---	2	27.8	13.9	79	13,921	3.51	489
14,500 - 15,499---	2	48.5	24.3	87	14,676	3.59	527
TOTAL OR AVG.----ALL REC.--	65	2,130.4	32.8	82	10,451	3.65	381
MIXED AND OTHER BREEDS							
LESS THAN 6,500---	6	318.6	53.1	82	5,934	3.79	225
6,500 - 7,499---	10	467.1	46.7	84	7,117	4.23	301
7,500 - 8,499---	35	1,846.9	52.8	81	8,074	4.05	327
8,500 - 9,499---	67	4,604.1	68.7	83	9,038	4.16	376
9,500 - 10,499---	87	5,804.8	66.7	84	9,970	4.00	399
10,500 - 11,499---	147	8,444.9	57.4	84	11,040	4.01	443
11,500 - 12,499---	165	11,423.3	69.2	85	11,990	3.89	467
12,500 - 13,499---	179	13,967.5	78.0	85	13,035	3.81	497
13,500 - 14,499---	167	12,114.6	72.5	85	13,987	3.75	524
14,500 - 15,499---	132	9,883.8	74.9	86	14,947	3.69	552
15,500 - 16,499---	90	7,349.6	81.7	87	15,994	3.71	594
16,500 - 17,499---	49	4,237.6	86.5	86	16,892	3.58	605
17,500 - 18,499---	22	1,691.3	76.9	86	17,947	3.61	648
18,500 - 19,499---	7	985.0	140.7	85	19,007	3.32	631
TOTAL OR AVG.----ALL REC.--	1,163	83,139.1	71.5	85	13,077	3.80	497

TABLE 3.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL OFFICIAL HERD RECORDS, BY BREED AND HERD SIZE,
MAY 1, 1978 - APRIL 30, 1979

HERD SIZE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
NUMBER	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
AYRSHIRE							
5.0 - 25---	88	1,276.0	14.5	85	12,043	3.97	478
25.1 - 50---	169	6,431.6	38.1	84	11,636	3.93	457
50.1 - 75---	80	4,864.9	60.8	84	12,148	3.96	481
75.1 - 100---	24	2,092.3	87.2	85	12,461	3.98	496
100.1 - 150---	15	1,828.3	121.9	84	11,057	3.99	441
150.1 - 200---	2	383.7	191.9	88	11,931	3.97	474
200.1 - 300---	1	258.2	258.2	84	10,461	4.41	461
GUERNSEY							
5.0 - 25---	144	2,293.1	15.9	85	10,460	4.64	485
25.1 - 50---	470	17,870.8	38.0	87	10,663	4.67	498
50.1 - 75---	239	14,419.4	60.4	87	10,930	4.68	511
75.1 - 100---	93	7,854.1	84.5	87	10,968	4.69	514
100.1 - 150---	44	5,342.5	121.4	86	10,757	4.65	500
150.1 - 200---	19	3,236.0	170.3	86	10,742	4.62	496
200.1 - 300---	11	2,785.6	253.2	84	11,549	4.40	508
300.1 - 400---	5	1,706.7	341.3	87	11,241	4.55	512
400.1 - 500---	2	922.9	461.5	86	11,394	4.55	518
1,000.1 - 1,250---	1	1,146.0	1,146.0	83	11,128	4.54	505
HOLSTEIN							
5.0 - 25---	1,263	24,845.2	19.7	86	14,483	3.67	532
25.1 - 50---	10,462	408,978.9	39.1	86	14,719	3.69	543
50.1 - 75---	7,849	478,168.9	60.9	86	14,870	3.68	547
75.1 - 100---	3,721	320,641.9	86.2	86	14,846	3.66	543
100.1 - 150---	2,816	337,639.5	119.9	86	14,851	3.63	539
150.1 - 200---	929	158,703.2	170.8	86	14,777	3.61	534
200.1 - 300---	693	166,072.2	239.6	86	15,036	3.60	542
300.1 - 400---	282	97,202.6	344.7	85	15,332	3.59	550
400.1 - 500---	151	67,651.5	448.0	85	15,273	3.56	543
500.1 - 750---	160	95,270.9	595.4	85	16,228	3.59	583
750.1 - 1,000---	54	47,516.2	879.9	84	16,553	3.59	595
1,000.1 - 1,250---	28	30,786.4	1,099.5	84	16,356	3.60	589
1,250.1 - 1,500---	15	20,581.2	1,372.1	85	16,349	3.63	593
1,500.1 - 2,000---	13	22,508.4	1,731.4	84	15,637	3.59	562
2,000.1 - 3,000---	7	17,689.9	2,527.1	86	16,294	3.54	576
MORE THAN 3,000 --	1	3,426.8	3,426.8	84	16,061	3.41	548
JERSEY							
5.0 - 25---	213	3,542.0	16.6	85	9,690	4.86	471
25.1 - 50---	401	15,137.4	37.8	86	9,997	4.89	489
50.1 - 75---	260	15,993.7	61.5	86	10,035	4.89	491
75.1 - 100---	148	12,774.4	86.3	86	10,058	4.87	490
100.1 - 150---	131	15,847.5	121.0	86	10,335	4.93	509
150.1 - 200---	52	8,840.6	170.0	85	10,329	4.93	509
200.1 - 300---	25	5,913.5	236.5	85	10,128	4.87	493
300.1 - 400---	19	6,406.9	337.2	85	11,235	4.87	547
400.1 - 500---	6	2,634.7	439.1	87	10,300	4.96	511
500.1 - 750---	4	2,357.8	589.5	85	11,217	4.91	551
BROWN SWISS							
5.0 - 25---	100	1,646.2	16.5	85	12,052	4.04	487
25.1 - 50---	233	8,590.5	36.9	86	11,992	4.07	488
50.1 - 75---	95	5,676.8	59.8	85	12,207	4.05	494
75.1 - 100---	29	2,514.4	86.7	85	12,815	4.03	516
100.1 - 150---	21	2,449.1	116.6	85	12,849	4.02	516
150.1 - 200---	9	1,531.6	170.2	83	13,177	4.01	528
200.1 - 300---	3	784.4	261.5	88	13,208	3.90	515
300.1 - 400---	3	1,053.7	351.2	85	12,811	3.97	509
MILKING SHORTHORN							
5.0 - 25---	25	444.8	17.8	82	10,552	3.63	383
25.1 - 50---	30	1,072.1	35.7	83	10,439	3.67	383
50.1 - 75---	8	457.7	57.2	82	10,640	3.55	378
75.1 - 100---	2	155.8	77.9	82	9,694	3.81	369

TABLE 3.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL OFFICIAL HERD RECORDS, BY BREED AND HERD SIZE,
MAY 1, 1978 - APRIL 30, 1979--CON.

HERD SIZE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
NUMBER	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
			MIXED AND OTHER BREEDS				
5.0 - 25---	88	1,565.3	17.8	85	11,902	3.91	465
25.1 - 50---	457	17,467.4	38.2	85	12,676	3.86	489
50.1 - 75---	287	17,472.7	60.9	86	13,104	3.87	507
75.1 - 100---	170	14,725.6	86.6	85	12,953	3.85	499
100.1 - 150---	98	11,792.3	120.3	85	13,194	3.82	504
150.1 - 200---	24	4,169.7	173.7	85	13,522	3.81	515
200.1 - 300---	18	4,297.6	238.8	85	13,634	3.72	507
300.1 - 400---	8	2,638.9	329.9	86	13,773	3.66	504
400.1 - 500---	4	1,698.6	424.7	81	12,279	3.66	449
500.1 - 750---	4	2,518.6	629.7	85	13,026	3.39	442
750.1 - 1,000---	3	2,759.9	920.0	83	13,172	3.43	452
1,000.1 - 1,250---	2	2,032.5	1,016.3	81	15,041	3.68	553

TABLE 4.--STATE AND NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE OFFICIAL HERD RECORDS, MAY 1, 1978 - APRIL 30, 1979 1/

STATE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FOR-AGE	DRY FOR-AGE	PAS-TURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
ALABAMA	188	23,059.1	122.7	85	12,928	3.63	469	64	111	17	227	454	682	5.32	1,490	808
ALASKA	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
ARIZONA	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
ARKANSAS	85	4,937.9	58.1	84	13,333	3.54	472	55	56	40	197	358	548	4.16	1,382	834
CALIFORNIA	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
COLORADO	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
CONNECTICUT	269	20,272.7	75.4	86	14,987	3.76	564	65	206	17	41	471	735	4.77	1,711	977
DELAWARE	43	3,032.8	70.5	87	14,773	3.64	538	52	188	21	18	365	630	4.37	1,685	1,055
FLORIDA	39	9,593.1	246.0	86	12,116	3.51	425	86	79	16	213	547	692	5.78	1,570	877
GEORGIA	253	30,030.8	118.7	85	13,422	3.70	496	69	154	13	181	478	723	5.46	1,563	840
HAWAII	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
IDAHO	197	16,956.1	86.1	86	14,554	3.64	530	57	67	87	12	325	568	3.88	1,480	911
ILLINOIS	1,029	55,517.2	54.0	85	13,962	3.75	523	53	107	37	55	272	505	3.67	1,439	934
INDIANA	785	45,877.6	58.4	86	14,133	3.81	539	58	143	32	61	342	622	4.46	1,515	893
IOWA	1,463	69,487.2	47.5	85	13,286	3.72	494	51	98	42	49	246	477	3.64	1,323	846
KANSAS	644	40,780.2	63.3	84	13,816	3.61	499	63	96	48	64	331	576	4.22	1,400	824
KENTUCKY	392	24,230.6	61.8	84	12,751	3.70	472	51	124	22	145	328	530	4.18	1,353	824
LOUISIANA	288	29,146.1	101.2	84	11,643	3.57	416	59	33	29	304	395	576	4.98	1,341	766
MAINE	369	20,552.3	55.7	87	14,737	3.66	540	63	139	30	72	461	713	4.84	1,713	1,001
MARYLAND	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
MASSACHUSETTS	256	15,382.2	60.1	86	14,582	3.73	544	59	165	26	66	413	690	4.72	1,719	1,029
MICHIGAN	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
MINNESOTA	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
MISSISSIPPI	216	20,885.3	96.7	85	12,346	3.63	448	56	107	16	252	372	551	4.51	1,381	831
MISSOURI	630	40,511.1	64.3	84	13,267	3.65	484	56	85	40	149	330	560	4.27	1,353	794
MONTANA	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
NEBRASKA	390	25,766.5	66.1	84	13,058	3.65	476	55	99	45	40	280	493	3.81	1,314	822
NEVADA	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
NEW HAMPSHIRE	175	10,528.1	60.2	86	14,504	3.76	545	57	160	26	59	403	653	4.57	1,682	1,028
NEW JERSEY	196	14,112.7	72.0	86	14,650	3.76	551	55	136	19	61	359	643	4.42	1,620	976
NEW MEXICO	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
NEW YORK	2,868	184,107.1	64.2	87	15,280	3.70	565	58	136	24	74	380	641	4.23	1,685	1,045
NORTH CAROLINA	516	52,543.8	101.8	87	14,710	3.56	524	59	200	12	102	432	716	4.79	1,672	957
NORTH DAKOTA	101	6,039.9	59.8	83	12,795	3.63	465	53	88	46	68	230	453	3.56	1,262	809
OHIO	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
OKLAHOMA	232	17,872.3	77.0	84	14,220	3.67	522	60	66	52	139	355	617	4.40	1,488	871
OREGON	83	8,641.8	104.1	86	14,931	3.76	561	60	100	58	61	368	633	4.22	1,573	940
PENNSYLVANIA	3,229	177,353.8	54.9	86	14,739	3.79	558	60	149	29	75	364	658	4.50	1,626	968
PUERTO RICO	84	19,489.5	232.0	79	9,012	2.97	268	48	27	3	351	435	606	6.36	1,419	813
RHODE ISLAND	24	1,190.8	49.6	86	14,284	3.65	521	56	152	24	101	397	676	4.75	1,650	974
SOUTH CAROLINA	206	27,270.7	132.4	86	13,024	3.89	506	58	163	14	221	417	690	5.29	1,540	850
SOUTH DAKOTA	182	10,476.5	57.6	84	13,271	3.68	488	50	96	49	37	223	435	3.34	1,315	879
TENNESSEE	497	43,477.2	87.5	85	13,477	3.83	516	55	175	14	125	385	659	4.94	1,536	877
TEXAS	400	48,721.8	121.8	85	14,025	3.59	504	68	40	56	206	413	693	4.98	1,610	917
UTAH	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
VERMONT	787	45,080.6	57.3	86	14,245	3.73	532	54	103	23	83	395	635	4.50	1,648	1,013
VIRGINIA	842	76,006.1	90.3	86	14,447	3.63	525	53	177	13	150	393	677	4.70	1,614	936
WASHINGTON	468	59,039.5	126.2	86	15,727	3.66	576	67	103	46	115	413	716	4.56	1,678	962
WEST VIRGINIA	161	12,112.0	75.2	86	13,993	3.64	509	57	148	20	102	388	621	4.44	1,546	925
WISCONSIN	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
WYOMING	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
UNITED STATES	18,587	1,310,083.0	70.5	86	14,129	3.70	522	58	126	30	109	372	629	4.49	1,555	927

1/ DASHES INDICATE HERD RECORDS ARE INCLUDED IN PLAN, BUT NONE ARE COMPLETE.

TABLE 5.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE OFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL,
MAY 1, 1978 - APRIL 30, 1979 1/

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FOR-AGE	DRY FOR-AGE	PAS-TURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
							AYRSHIRE									
6,500 - 7,499---	4	297.7	74.4	82	7,077	4.18	296	16	107	35	225	112	465	6.61	861	395
7,500 - 8,499---	7	312.5	44.6	79	7,998	4.01	321	37	67	60	198	212	430	5.43	844	414
8,500 - 9,499---	20	788.3	39.4	81	9,016	4.02	362	45	97	49	209	267	471	5.22	997	526
9,500 - 10,499---	33	1,514.9	45.9	82	10,112	4.02	406	42	117	35	171	264	473	4.69	1,111	638
10,500 - 11,499---	55	2,419.2	44.0	84	11,053	3.95	437	47	106	39	143	295	534	4.84	1,232	698
11,500 - 12,499---	58	2,403.3	41.4	84	11,978	3.97	475	50	104	37	136	319	538	4.50	1,352	814
12,500 - 13,499---	56	2,816.4	50.3	86	12,988	4.00	519	55	141	31	123	374	599	4.61	1,496	897
13,500 - 14,499---	26	1,285.3	49.4	85	13,914	3.96	551	53	106	33	143	363	605	4.35	1,576	971
14,500 - 15,499---	16	712.5	44.5	87	15,016	3.94	591	57	114	34	148	411	651	4.33	1,720	1,069
15,500 - 16,499---	2	28.3	14.2	86	15,756	3.83	604	67	106	25	117	418	629	3.99	1,771	1,142
TOTAL OR AVG.----ALL REC.--	277	12,578.4	45.4	84	11,779	3.98	469	49	114	37	147	319	548	4.71	1,330	782
							GUERNSEY									
LESS THAN 6,500---	3	72.4	24.1	87	5,913	5.06	299	29	125	17	243	155	326	5.46	728	403
6,500 - 7,499---	13	509.3	39.2	82	7,121	4.55	324	36	92	33	158	214	429	6.04	789	360
7,500 - 8,499---	31	1,673.3	54.0	84	8,100	4.58	371	39	104	29	177	236	450	5.56	976	526
8,500 - 9,499---	72	4,167.4	57.9	84	9,087	4.58	416	43	100	27	193	264	472	5.19	1,098	627
9,500 - 10,499---	124	6,724.9	54.2	86	10,008	4.67	467	45	116	32	169	287	504	5.03	1,203	699
10,500 - 11,499---	137	7,563.4	55.2	86	10,942	4.64	508	49	118	38	200	318	559	5.12	1,326	767
11,500 - 12,499---	92	5,118.2	55.6	87	11,904	4.69	558	50	113	32	182	317	548	4.60	1,450	902
12,500 - 13,499---	50	2,625.3	52.5	88	12,991	4.69	609	55	118	31	151	375	608	4.68	1,595	987
13,500 - 14,499---	16	760.7	47.5	89	13,909	4.75	660	58	87	35	176	384	633	4.55	1,705	1,072
14,500 - 15,499---	1	53.5	53.5	91	15,106	4.77	721	71	101	24	---	330	580	3.84	1,806	1,226
TOTAL OR AVG.----ALL REC.--	539	29,268.4	54.[illegible]	86	10,652	4.66	496	47	112	33	183	303	529	5.01	1,290	761
							HOLSTEIN									
LESS THAN 6,500---	14	1,811.6	129.4	82	5,895	3.22	190	32	42	23	342	275	422	7.15	874	452
6,500 - 7,499---	28	3,214.9	114.8	79	7,019	3.18	223	37	44	29	321	306	435	6.18	996	560
7,500 - 8,499---	66	7,200.4	109.1	78	7,985	3.28	262	41	84	32	288	322	513	5.85	1,064	550
8,500 - 9,499---	183	14,268.3	78.0	79	9,103	3.50	319	44	96	35	247	298	502	5.25	1,087	585
9,500 - 10,499---	360	28,069.1	78.0	81	10,038	3.55	356	47	113	35	230	312	539	5.37	1,163	624
10,500 - 11,499---	723	52,223.2	72.2	83	11,042	3.61	399	52	118	35	208	330	559	4.98	1,219	660
11,500 - 12,499---	1,350	93,193.1	69.0	84	12,037	3.64	438	54	128	35	193	333	574	4.73	1,303	729
12,500 - 13,499---	2,004	147,574.2	73.6	85	13,041	3.63	474	56	138	33	172	347	595	4.56	1,421	826
13,500 - 14,499---	2,627	185,598.7	70.7	86	14,015	3.63	509	58	140	34	162	366	624	4.42	1,525	901
14,500 - 15,499---	2,817	206,606.5	73.3	86	14,977	3.64	545	60	152	34	155	382	649	4.32	1,632	983
15,500 - 16,499---	2,525	186,035.7	73.7	87	15,978	3.63	580	63	156	33	145	404	678	4.22	1,741	1,063
16,500 - 17,499---	1,679	121,788.9	72.5	87	16,939	3.62	613	66	157	35	140	421	705	4.12	1,845	1,140
17,500 - 18,499---	869	59,804.9	68.8	87	17,921	3.62	648	68	161	34	137	449	737	4.07	1,948	1,211
18,500 - 19,499---	331	25,067.3	75.7	88	18,953	3.58	678	73	156	36	137	476	766	4.01	2,079	1,312
19,500 - 20,499---	108	6,912.5	64.0	88	19,961	3.60	718	75	152	36	129	487	788	3.92	2,176	1,389
20,500 - 21,499---	36	2,584.6	71.8	89	20,815	3.56	742	82	144	32	168	537	813	3.86	2,242	1,429
21,500 - 22,499---	6	281.1	46.9	90	21,723	3.54	768	83	159	22	97	500	760	3.50	2,360	1,600
TOTAL OR AVG.----ALL REC.--	15,726	1,142,235.0	72.6	86	14,531	3.63	527	60	144	34	166	379	640	4.43	1,588	948
							JERSEY									
LESS THAN 6,500---	18	663.4	36.9	81	5,835	4.97	290	29	81	31	193	181	346	5.92	704	358
6,500 - 7,499---	30	1,903.0	63.4	81	7,037	4.68	329	40	65	29	251	256	408	5.80	845	437
7,500 - 8,499---	90	5,621.9	62.5	82	8,145	4.84	394	39	91	30	216	252	441	5.40	993	553
8,500 - 9,499---	170	11,552.4	68.0	85	9,041	4.90	443	47	97	24	182	306	487	5.39	1,135	648
9,500 - 10,499---	213	13,650.8	64.0	86	10,007	4.85	485	47	85	28	186	315	503	5.03	1,242	739
10,500 - 11,499---	191	13,034.0	68.2	87	10,962	4.89	536	49	109	25	199	325	534	4.87	1,386	851
11,500 - 12,499---	84	6,312.7	75.2	87	11,879	4.85	576	55	110	25	169	381	593	5.00	1,516	923
12,500 - 13,499---	34	2,476.5	72.8	86	12,795	4.76	609	53	97	28	159	368	602	4.71	1,607	1,005
13,500 - 14,499---	8	562.1	70.3	89	13,948	4.98	694	80	103	26	204	446	636	4.56	1,754	1,119
14,500 - 15,499---	1	130.9	130.9	87	15,420	4.98	768	64	--	23	336	410	590	3.83	2,019	1,429
TOTAL OR AVG.----ALL REC.--	839	55,907.7	66.6	85	10,079	4.86	490	48	97	26	191	317	512	5.12	1,262	751
							BROWN SWISS									
LESS THAN 6,500---	1	38.5	38.5	78	5,201	3.92	204	31	37	63	282	190	350	6.73	563	213
6,500 - 7,499---	2	127.8	63.9	81	7,058	4.02	284	41	116	42	---	228	419	5.97	735	316
7,500 - 8,499---	15	637.1	42.5	83	8,169	3.99	326	37	103	43	130	208	400	4.88	861	461
8,500 - 9,499---	9	347.7	38.6	80	8,976	4.09	367	44	112	30	143	238	447	4.99	937	490
9,500 - 10,499---	28	1,260.6	45.0	84	10,080	4.05	408	41	121	44	197	219	511	5.07	1,110	598
10,500 - 11,499---	62	2,595.3	41.9	84	10,993	4.04	444	49	94	44	169	280	506	4.60	1,193	687
11,500 - 12,499---	57	2,331.3	40.9	85	12,003	4.04	485	52	119	42	97	276	527	4.39	1,287	760
12,500 - 13,499---	49	2,797.8	57.1	85	12,979	4.04	525	59	124	47	138	352	632	4.87	1,463	830
13,500 - 14,499---	43	1,904.0	44.3	87	13,945	3.98	555	54	134	37	137	329	592	4.24	1,526	934
14,500 - 15,499---	13	626.5	48.2	87	14,931	3.94	588	65	122	33	223	391	648	4.34	1,699	1,051
15,500 - 16,499---	5	397.5	79.5	87	15,757	4.09	644	73	198	42	250	498	770	4.89	1,864	1,094
16,500 - 17,499---	2	155.1	77.6	88	16,830	3.97	668	85	188	5	---	471	709	4.20	1,944	1,235
17,500 - 18,499---	2	68.6	34.3	90	18,067	3.80	687	58	82	72	126	430	811	4.49	2,072	1,261
TOTAL OR AVG.----ALL REC.--	288	13,287.8	46.1	85	12,115	4.02	487	53	118	42	152	305	560	4.65	1,334	775

SEE FOOTNOTE AT END OF TABLE.

TABLE 5.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE OFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL, MAY 1, 1978 - APRIL 30, 1979 1/--CON.

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FOR-AGE	DRY FOR-AGE	PAS-TURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
MILKING SHORTHORN																
LESS THAN 6,500---	1	29.2	29.2	76	5,347	3.46	185	17	49	34	209	100	210	3.93	438	228
6,500 - 7,499---	1	60.1	60.1	81	7,178	3.72	267	23	52	44	213	110	250	3.48	652	402
7,500 - 8,499---	5	124.5	24.9	78	8,160	3.69	301	26	71	55	156	134	342	4.20	843	501
8,500 - 9,499---	7	257.3	36.8	82	8,898	3.74	333	34	90	42	169	203	409	4.57	914	506
9,500 - 10,499---	5	204.4	40.9	83	10,127	3.64	369	34	86	56	158	175	372	3.67	1,009	637
10,500 - 11,499---	11	392.8	35.7	83	10,821	3.64	394	39	77	46	185	223	437	4.04	1,093	656
11,500 - 12,499---	6	141.5	23.6	81	12,074	3.63	438	49	70	57	108	269	522	4.33	1,216	693
12,500 - 13,499---	3	111.2	37.1	83	12,943	3.65	472	45	56	57	250	280	521	4.02	1,333	812
13,500 - 14,499---	2	27.8	13.9	79	13,921	3.51	489	51	61	46	156	299	585	4.20	1,370	786
14,500 - 15,499---	1	5.5	5.5	79	14,607	3.58	523	48	98	33	107	180	310	2.12	1,491	1,181
TOTAL OR AVG.----ALL REC.--	42	1,354.3	32.2	82	10,211	3.65	373	37	75	49	175	207	418	4.10	1,030	611
MIXED AND OTHER BREEDS																
LESS THAN 6,500---	5	263.8	52.8	83	5,853	3.79	222	64	49	42	161	311	406	6.99	719	313
6,500 - 7,499---	8	394.1	49.3	84	7,141	4.17	298	36	89	25	191	226	375	5.24	828	454
7,500 - 8,499---	28	1,664.6	59.5	81	8,051	4.06	327	46	65	26	244	267	434	5.40	952	517
8,500 - 9,499---	43	3,041.6	70.7	83	8,993	4.08	367	45	86	33	205	280	489	5.46	1,078	588
9,500 - 10,499---	68	4,645.3	68.3	85	9,954	3.94	392	55	109	26	231	340	531	5.34	1,177	646
10,500 - 11,499---	112	6,233.1	55.8	84	11,023	3.96	437	50	105	36	173	313	547	4.96	1,238	692
11,500 - 12,499---	130	8,221.0	63.2	85	11,988	3.92	470	56	135	31	151	336	590	4.92	1,343	753
12,500 - 13,499---	131	8,314.4	63.5	86	13,040	3.80	495	57	134	32	167	369	632	4.84	1,469	837
13,500 - 14,499---	128	8,213.0	64.2	86	13,977	3.76	526	57	148	29	108	346	620	4.43	1,533	913
14,500 - 15,499---	98	6,496.0	66.3	86	14,971	3.75	561	60	150	30	98	375	655	4.38	1,644	989
15,500 - 16,499---	69	4,782.4	69.3	87	15,967	3.76	600	65	156	30	84	365	667	4.18	1,754	1,087
16,500 - 17,499---	34	1,990.7	58.6	88	16,979	3.70	629	67	153	30	80	404	695	4.09	1,849	1,154
17,500 - 18,499---	17	931.6	54.8	87	17,934	3.71	665	68	154	31	82	462	777	4.33	1,960	1,184
18,500 - 19,499---	5	259.8	52.0	88	18,922	3.48	659	69	203	21	54	408	792	4.18	2,068	1,276
TOTAL OR AVG.----ALL REC.--	876	55,451.4	63.3	85	12,820	3.83	491	56	132	30	151	346	600	4.76	1,434	834

1/ DASHES INDICATE FEED NOT INCLUDED IN RATION.

TABLE 6.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE OFFICIAL HERD RECORDS, BY BREED AND HERD SIZE, MAY 1, 1978 - APRIL 30, 1979 1/

HERD SIZE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FOR-AGE	DRY FOR-AGE	PAS-TURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
NUMBER	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
AYRSHIRE																
5.0 - 25---	66	912.9	13.8	84	11,955	3.97	475	50	99	39	152	324	555	4.69	1,330	776
25.1 - 50---	118	4,519.7	38.3	83	11,477	3.94	452	47	96	42	146	305	525	4.62	1,269	744
50.1 - 75---	62	3,806.6	61.4	84	12,106	3.98	482	49	116	32	158	326	549	4.58	1,386	836
75.1 - 100---	19	1,666.1	87.7	84	12,331	3.99	492	49	136	27	123	333	573	4.65	1,417	844
100.1 - 150---	10	1,224.4	122.4	85	11,009	4.06	447	51	132	42	118	315	595	5.61	1,249	653
150.1 - 200---	1	190.5	190.5	92	13,476	3.87	522	83	148	--	---	610	760	5.64	1,673	913
200.1 - 300---	1	258.2	258.2	84	10,461	4.41	461	29	194	--	---	180	370	3.54	1,179	809
GUERNSEY																
5.0 - 25---	88	1,356.8	15.4	85	10,461	4.64	485	46	90	46	152	288	509	4.92	1,237	728
25.1 - 50---	219	8,296.2	37.9	86	10,634	4.66	496	45	92	36	159	273	489	4.63	1,256	767
50.1 - 75---	136	8,197.5	60.3	86	10,749	4.68	503	48	110	31	166	300	520	4.87	1,300	779
75.1 - 100---	46	3,835.8	83.4	87	10,793	4.64	501	49	120	29	188	318	547	5.07	1,336	790
100.1 - 150---	32	3,912.2	122.3	86	10,626	4.67	496	46	120	29	199	305	550	5.26	1,306	756
150.1 - 200---	12	1,985.4	165.5	85	10,407	4.71	490	47	129	25	195	317	551	5.42	1,287	736
200.1 - 300---	5	1,214.0	242.8	84	10,386	4.48	465	60	145	22	329	400	567	5.47	1,316	749
400.1 - 500---	1	470.5	470.5	85	10,616	4.42	469	66	265	63	365	470	930	8.76	1,329	399
HOLSTEIN																
5.0 - 25---	695	13,559.8	19.6	86	14,438	3.65	527	57	96	51	145	348	599	4.16	1,515	916
25.1 - 50---	5,378	211,794.6	39.2	85	14,509	3.66	531	56	118	41	138	349	606	4.19	1,552	946
50.1 - 75---	4,550	278,212.3	61.1	86	14,693	3.65	536	57	138	35	149	362	621	4.25	1,586	966
75.1 - 100---	2,318	199,837.2	86.2	86	14,632	3.63	531	59	150	31	169	378	640	4.38	1,598	958
100.1 - 150---	1,781	213,947.2	120.1	86	14,634	3.61	528	61	156	30	180	391	658	4.52	1,606	948
150.1 - 200---	524	89,506.9	170.8	86	14,344	3.60	516	63	166	29	202	410	672	4.71	1,598	926
200.1 - 300---	335	79,063.6	236.0	85	14,293	3.59	513	66	166	28	200	430	693	4.82	1,612	919
300.1 - 400---	86	29,309.0	340.8	84	13,819	3.54	489	63	168	31	249	410	681	4.86	1,577	897
400.1 - 500---	33	14,498.5	439.3	83	12,661	3.46	438	62	183	32	312	422	674	5.57	1,513	839
500.1 - 750---	14	7,812.9	558.1	82	13,527	3.35	453	70	106	43	186	427	666	5.05	1,610	943
750.1 - 1,000---	2	1,676.5	838.3	88	17,452	3.41	595	75	216	23	90	477	811	4.68	1,992	1,182
1,000.1 - 1,250---	1	1,059.0	1,059.0	89	19,373	3.45	669	83	215	32	---	510	850	4.39	2,234	1,384
1,250.1 - 1,500---	1	1,389.1	1,389.1	85	14,527	3.31	481	81	77	32	---	590	760	5.23	1,865	1,105
1,500.1 - 2,000---	1	1,568.4	1,568.4	87	14,346	3.63	521	80	126	56	91	490	790	5.51	1,536	746
JERSEY																
5.0 - 25---	145	2,394.1	16.5	86	9,796	4.86	476	44	72	38	164	301	490	5.07	1,204	714
25.1 - 50---	264	9,925.1	37.6	86	9,987	4.86	485	45	78	31	168	295	471	4.75	1,235	764
50.1 - 75---	177	10,887.4	61.5	86	9,897	4.86	481	44	83	31	182	287	480	4.88	1,211	731
75.1 - 100---	104	8,951.1	86.1	86	10,085	4.84	488	45	97	24	193	298	483	4.82	1,255	772
100.1 - 150---	91	11,047.6	121.4	86	10,114	4.88	494	50	111	23	206	326	526	5.25	1,268	742
150.1 - 200---	32	5,414.7	169.2	85	10,162	4.89	497	54	115	20	195	361	584	5.82	1,316	732
200.1 - 300---	15	3,441.5	229.4	85	10,133	4.81	487	50	95	20	240	343	557	5.63	1,287	730
300.1 - 400---	9	3,011.6	334.6	83	11,219	4.82	541	58	114	20	203	373	603	5.38	1,470	866
400.1 - 500---	2	834.6	417.3	89	8,966	5.05	453	71	134	--	132	492	588	6.54	1,232	644
BROWN SWISS																
5.0 - 25---	63	1,049.5	16.7	85	11,995	4.04	485	51	104	48	135	302	563	4.70	1,297	734
25.1 - 50---	136	5,113.9	37.6	86	11,788	4.05	477	50	106	45	144	277	516	4.42	1,278	763
50.1 - 75---	56	3,389.6	60.5	84	11,894	4.04	480	50	130	36	115	284	537	4.52	1,299	762
75.1 - 100---	16	1,394.7	87.2	85	12,319	4.00	493	60	147	35	179	337	604	5.02	1,359	755
100.1 - 150---	12	1,406.4	117.2	85	12,917	4.04	522	62	87	45	220	383	632	4.89	1,474	843
150.1 - 200---	4	690.3	172.6	83	13,124	3.89	511	61	107	50	227	378	739	5.75	1,563	824
200.1 - 300---	1	243.4	243.4	87	13,906	3.78	526	49	234	30	---	350	610	4.39	1,566	956
MILKING SHORTHORN																
5.0 - 25---	16	278.3	17.4	81	10,866	3.61	392	41	98	53	122	228	486	4.55	1,100	614
25.1 - 50---	20	721.4	36.1	83	9,976	3.69	368	35	72	50	174	199	408	4.09	1,014	606
50.1 - 75---	5	276.9	55.4	80	10,213	3.59	367	39	59	45	206	215	385	3.71	1,002	617
75.1 - 100---	1	77.7	77.7	83	10,036	3.76	377	30	102	43	189	180	390	3.89	1,023	633
MIXED AND OTHER BREEDS																
5.0 - 25---	56	1,064.2	19.0	84	11,698	3.93	460	51	75	47	165	299	540	4.65	1,240	700
25.1 - 50---	366	14,057.3	38.4	85	12,805	3.84	492	53	115	39	135	328	600	4.76	1,399	799
50.1 - 75---	228	13,871.3	60.8	86	13,078	3.87	506	52	135	31	133	326	584	4.51	1,450	865
75.1 - 100---	131	11,294.2	86.2	85	12,833	3.85	494	57	134	29	155	358	610	4.83	1,452	842
100.1 - 150---	67	8,102.9	120.9	85	13,155	3.82	503	62	160	24	132	378	635	4.92	1,478	843
150.1 - 200---	14	2,369.2	169.2	86	13,790	3.70	510	60	136	24	199	381	659	4.81	1,561	902
200.1 - 300---	7	1,711.6	244.5	85	11,879	3.67	436	71	159	13	236	424	609	5.23	1,399	790
300.1 - 400---	4	1,335.5	333.9	86	13,359	3.70	494	79	209	7	173	291	502	3.87	1,520	1,018
400.1 - 500---	1	422.3	422.3	78	8,228	3.86	318	57	25	3	365	370	440	5.35	1,099	659
500.1 - 750---	2	1,222.9	611.5	87	9,105	3.62	330	65	99	23	269	379	551	6.06	1,196	645

1/ DASHES INDICATE FEED NOT INCLUDED IN RATION.

TABLE 7.--STATE AND NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL NONOFFICIAL HERD RECORDS, MAY 1, 1978 - APRIL 30, 1979 1/

STATE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
ALABAMA----------	11	1,227.5	111.6	87	12,382	3.62	448
ALASKA-----------	6	403.3	67.2	86	15,689	3.32	521
ARIZONA----------	1	840.0	840.0	88	14,705	3.54	520
ARKANSAS---------	52	5,477.2	105.3	80	12,236	3.63	444
CALIFORNIA-------	138	39,529.8	286.4	84	14,698	3.70	544
COLORADO---------	26	4,793.8	184.4	85	15,284	3.53	540
CONNECTICUT------	15	617.9	41.2	88	14,246	3.97	565
DELAWARE---------	4	375.0	93.8	86	14,350	3.49	501
FLORIDA----------	5	1,368.9	273.8	83	11,084	3.62	401
GEORGIA----------	5	370.9	74.2	86	12,356	3.88	480
HAWAII-----------	2	1,459.1	729.6	75	13,046	3.14	409
IDAHO------------	47	3,359.1	71.5	85	13,760	3.65	502
ILLINOIS---------	205	10,217.1	49.8	85	13,475	3.73	502
INDIANA----------	204	10,068.7	49.4	86	13,807	3.71	512
IOWA-------------	681	27,798.4	40.8	84	12,443	3.70	461
KANSAS-----------	124	6,394.5	51.6	84	12,936	3.59	464
KENTUCKY---------	38	2,837.5	74.7	85	13,562	3.56	483
LOUISIANA--------	3	205.8	68.6	86	12,208	3.29	402
MAINE------------	26	1,106.2	42.5	86	13,110	3.66	480
MARYLAND---------	52	3,699.7	71.1	86	13,362	3.74	500
MASSACHUSETTS----	17	636.2	37.4	86	13,031	3.68	480
MICHIGAN---------	676	37,799.0	55.9	87	14,588	3.72	542
MINNESOTA--------	1,913	74,031.3	38.7	85	13,285	3.76	500
MISSISSIPPI------	13	1,102.2	84.8	86	12,610	3.70	466
MISSOURI---------	166	8,806.8	53.1	84	12,603	3.63	457
MONTANA----------	9	1,369.7	152.2	83	13,427	3.56	478
NEBRASKA---------	49	2,517.2	51.4	84	12,974	3.54	459
NEW HAMPSHIRE----	28	1,049.3	37.5	86	12,319	3.81	469
NEW JERSEY-------	5	189.5	37.9	88	13,410	3.86	517
NEW MEXICO-------	1	135.4	135.4	78	12,106	3.91	473
NEW YORK---------	2,253	124,416.8	55.2	86	14,323	3.67	525
NORTH CAROLINA---	28	1,757.2	62.8	87	14,893	3.64	542
NORTH DAKOTA-----	40	2,493.7	62.3	83	12,647	3.54	448
OHIO-------------	505	23,544.7	46.6	86	14,267	3.66	522
OKLAHOMA---------	54	3,723.0	68.9	81	12,198	3.65	445
OREGON-----------	27	1,632.7	60.5	85	13,823	3.94	545
PENNSYLVANIA-----	1,572	74,685.6	47.5	85	13,714	3.74	513
SOUTH CAROLINA---	6	527.5	87.9	84	11,793	3.65	431
SOUTH DAKOTA-----	252	11,716.3	46.5	83	12,692	3.67	466
TENNESSEE--------	30	2,968.7	99.0	85	12,725	3.72	473
TEXAS------------	16	2,122.6	132.7	86	12,573	3.57	449
UTAH-------------	43	5,690.9	132.3	86	14,837	3.48	517
VERMONT----------	239	12,266.8	51.3	85	13,142	3.73	490
VIRGINIA---------	29	1,554.7	53.6	86	14,975	3.57	534
WASHINGTON-------	86	12,047.3	140.1	86	15,063	3.63	547
WEST VIRGINIA----	8	280.8	35.1	85	12,267	3.93	482
WISCONSIN--------	9,538	402,415.0	42.2	85	13,882	3.88	539
UNITED STATES----	19,248	933,631.3	48.5	85	13,847	3.77	522

1/ RECORDS ARE ONLY FROM PLANS INCLUDING BOTH MILK WEIGHTS AND FAT SAMPLING.

TABLE 8.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL NONOFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL, MAY 1, 1978 - APRIL 30, 1979 1/

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
			AYRSHIRE				
LESS THAN 6,500---	3	70.7	23.6	82	6,114	3.79	232
6,500 - 7,499---	1	43.7	43.7	84	6,568	4.64	305
7,500 - 8,499---	2	77.3	38.7	77	8,403	3.44	289
8,500 - 9,499---	4	176.3	44.1	80	9,350	3.96	370
9,500 - 10,499---	12	464.2	38.7	84	9,954	4.11	409
10,500 - 11,499---	17	444.0	26.1	84	10,884	3.97	432
11,500 - 12,499---	9	242.4	26.9	86	12,029	3.95	475
12,500 - 13,499---	10	402.5	40.3	85	12,665	3.97	503
13,500 - 14,499---	8	320.4	40.1	86	13,851	3.94	546
14,500 - 15,499---	2	77.2	38.6	85	14,888	3.83	570
16,500 - 17,499---	1	34.3	34.3	85	17,077	3.58	612
TOTAL OR AVG.----ALL REC.--	69	2,353.0	34.1	84	11,329	3.96	449
			GUERNSEY				
LESS THAN 6,500---	8	236.3	29.5	82	5,919	4.54	269
6,500 - 7,499---	12	487.5	40.6	82	7,148	4.71	337
7,500 - 8,499---	33	1,138.8	34.5	84	8,067	4.67	377
8,500 - 9,499---	77	2,379.2	30.9	85	9,016	4.71	425
9,500 - 10,499---	126	4,352.5	34.5	87	9,978	4.67	466
10,500 - 11,499---	107	3,707.8	34.7	86	10,982	4.57	502
11,500 - 12,499---	64	2,258.3	35.3	87	11,962	4.49	537
12,500 - 13,499---	28	1,089.7	38.9	87	12,941	4.26	551
13,500 - 14,499---	18	810.6	45.0	87	13,886	4.08	566
14,500 - 15,499---	6	199.6	33.3	88	14,951	4.29	641
15,500 - 16,499---	1	39.7	39.7	87	15,801	3.92	619
TOTAL OR AVG.----ALL REC.--	480	16,700.0	34.8	86	10,529	4.54	478
			HOLSTEIN				
LESS THAN 6,500---	9	372.8	41.4	82	6,109	3.62	221
6,500 - 7,499---	37	1,232.7	33.3	79	7,019	3.75	263
7,500 - 8,499---	99	3,743.6	37.8	80	8,115	3.77	306
8,500 - 9,499---	246	9,380.3	38.1	81	9,070	3.78	343
9,500 - 10,499---	574	24,679.8	43.0	81	10,061	3.78	380
10,500 - 11,499---	1,118	48,397.6	43.3	83	11,044	3.78	417
11,500 - 12,499---	2,022	92,403.7	45.7	84	12,044	3.78	455
12,500 - 13,499---	2,974	141,912.5	47.7	85	13,030	3.77	491
13,500 - 14,499---	3,616	177,731.3	49.2	85	14,008	3.76	527
14,500 - 15,499---	3,196	159,767.8	50.0	86	14,982	3.74	561
15,500 - 16,499---	2,121	112,763.6	53.2	86	15,960	3.73	596
16,500 - 17,499---	1,034	53,635.5	51.9	87	16,933	3.72	630
17,500 - 18,499---	372	24,568.0	66.0	87	17,895	3.64	652
18,500 - 19,499---	118	5,962.2	50.5	88	18,932	3.71	702
19,500 - 20,499---	30	1,333.5	44.5	88	19,929	3.70	737
20,500 - 21,499---	6	240.2	40.0	88	20,928	3.75	784
21,500 - 22,499---	1	20.6	20.6	90	22,043	3.75	826
TOTAL OR AVG.----ALL REC.--	17,573	858,145.7	48.8	85	14,038	3.75	526
			JERSEY				
LESS THAN 6,500---	9	199.2	22.1	77	5,499	4.49	247
6,500 - 7,499---	18	868.2	48.2	81	7,026	4.84	340
7,500 - 8,499---	50	1,684.9	33.7	85	8,014	4.87	390
8,500 - 9,499---	76	3,028.5	39.8	86	9,024	4.86	439
9,500 - 10,499---	73	2,732.5	37.4	86	10,054	4.87	490
10,500 - 11,499---	43	1,684.7	39.2	86	10,874	4.99	543
11,500 - 12,499---	24	1,465.0	61.0	87	11,998	4.66	559
12,500 - 13,499---	5	225.3	45.1	88	12,903	4.33	559
13,500 - 14,499---	2	58.2	29.1	89	14,143	3.96	560
14,500 - 15,499---	1	52.2	52.2	87	15,216	3.93	598
TOTAL OR AVG.----ALL REC.--	301	11,998.7	39.9	86	9,660	4.82	466
			BROWN SWISS				
LESS THAN 6,500---	1	20.4	20.4	71	5,988	3.87	232
6,500 - 7,499---	5	121.3	24.3	80	7,235	4.09	296
7,500 - 8,499---	1	47.2	47.2	76	8,207	3.87	318
8,500 - 9,499---	10	419.1	41.9	82	9,060	4.01	363
9,500 - 10,499---	12	331.1	27.6	87	10,007	4.11	411
10,500 - 11,499---	22	589.2	26.8	85	10,953	4.12	451
11,500 - 12,499---	19	538.9	28.4	86	11,994	3.99	479
12,500 - 13,499---	17	564.5	33.2	87	12,895	4.06	524
13,500 - 14,499---	14	511.5	36.5	86	13,948	4.04	564
14,500 - 15,499---	7	222.4	31.8	87	15,126	3.98	602
15,500 - 16,499---	1	30.7	30.7	89	15,624	3.94	616
TOTAL OR AVG.----ALL REC.--	109	3,396.3	31.2	85	11,681	4.05	473

SEE FOOTNOTE AT END OF TABLE.

TABLE 8.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL NONOFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL,
MAY 1, 1978 - APRIL 30, 1979 1/--CON.

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
			MILKING SHORTHORN				
6,500 - 7,499---	1	15.1	15.1	84	7,331	3.93	288
7,500 - 8,499---	1	23.6	23.6	70	7,660	3.75	287
8,500 - 9,499---	3	83.0	27.7	80	9,283	3.35	311
9,500 - 10,499---	1	29.0	29.0	89	9,855	3.67	362
10,500 - 11,499---	2	31.3	15.7	87	10,838	3.69	400
11,500 - 12,499---	1	11.4	11.4	82	11,629	3.57	415
13,500 - 14,499---	1	29.6	29.6	86	14,300	3.92	560
TOTAL OR AVG.----ALL REC.--	10	223.0	22.3	82	10,057	3.63	365
			MIXED AND OTHER BREEDS				
LESS THAN 6,500---	4	95.4	23.9	80	5,492	4.30	236
6,500 - 7,499---	8	221.5	27.7	83	7,083	4.57	324
7,500 - 8,499---	28	1,061.8	37.9	83	8,124	4.17	339
8,500 - 9,499---	37	1,759.1	47.5	84	9,122	4.37	399
9,500 - 10,499---	65	3,018.7	46.4	82	9,953	3.90	388
10,500 - 11,499---	89	6,624.5	74.4	81	11,123	3.95	439
11,500 - 12,499---	108	5,012.7	46.4	84	12,037	3.85	463
12,500 - 13,499---	100	5,094.9	50.9	85	13,070	3.80	497
13,500 - 14,499---	106	6,579.0	62.1	86	14,008	3.86	541
14,500 - 15,499---	72	5,912.8	82.1	87	15,024	3.62	544
15,500 - 16,499---	26	1,442.1	55.5	86	15,845	3.74	592
16,500 - 17,499---	10	521.5	52.2	86	16,887	3.63	613
17,500 - 18,499---	7	387.8	55.4	88	17,842	3.69	658
18,500 - 19,499---	2	621.5	310.8	82	19,041	3.45	656
TOTAL OR AVG.----ALL REC.--	662	38,353.3	57.9	84	12,745	3.82	487

1/ RECORDS ARE ONLY FROM PLANS INCLUDING BOTH MILK WEIGHTS AND FAT SAMPLING.

TABLE 9.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR ALL NONOFFICIAL HERD RECORDS, BY BREED AND HERD SIZE, MAY 1, 1978 - APRIL 30, 1979 1/

HERD SIZE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
NUMBER	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
			AYRSHIRE				
5.0 - 25---	24	400.0	16.7	84	11,052	3.92	433
25.1 - 50---	32	1,124.8	35.2	83	11,152	3.92	437
50.1 - 75---	10	578.5	57.9	85	12,205	4.03	492
75.1 - 100---	3	249.7	83.2	85	10,535	4.05	427
			GUERNSEY				
5.0 - 25---	128	2,343.8	18.3	86	10,168	4.59	467
25.1 - 50---	300	10,453.7	34.8	86	10,623	4.54	482
50.1 - 75---	36	2,153.4	59.8	86	9,975	4.67	466
75.1 - 100---	9	761.5	84.6	84	10,456	4.46	466
100.1 - 150---	4	465.6	116.4	86	11,389	4.23	482
150.1 - 200---	1	156.0	156.0	80	9,029	5.08	459
200.1 - 300---	1	292.4	292.4	88	13,751	4.26	586
			HOLSTEIN				
5.0 - 25---	1,973	39,322.8	19.9	85	13,450	3.76	506
25.1 - 50---	10,182	380,639.3	37.4	85	13,838	3.77	522
50.1 - 75---	3,755	223,830.1	59.6	85	14,150	3.77	533
75.1 - 100---	970	82,886.6	85.5	86	14,219	3.73	531
100.1 - 150---	477	56,441.3	119.1	85	14,260	3.72	530
150.1 - 200---	114	19,425.0	170.4	85	14,299	3.65	522
200.1 - 300---	57	13,497.5	236.8	85	14,526	3.65	530
300.1 - 400---	36	12,429.1	345.3	85	14,585	3.67	535
400.1 - 500---	24	10,725.0	446.9	85	14,932	3.55	530
500.1 - 750---	20	12,385.7	619.3	84	14,684	3.64	535
750.1 - 1,000---	5	4,445.9	889.2	83	16,263	3.60	585
1,000.1 - 1,250---	3	3,094.9	1,031.6	80	15,529	3.47	539
1,250.1 - 1,500---	1	1,483.8	1,483.8	75	11,810	3.51	414
			JERSEY				
5.0 - 25---	83	1,360.3	16.4	85	9,267	4.77	442
25.1 - 50---	156	5,458.9	35.0	86	9,518	4.76	453
50.1 - 75---	40	2,372.3	59.3	85	9,714	4.83	469
75.1 - 100---	11	981.7	89.2	87	10,194	4.98	508
100.1 - 150---	5	567.3	113.5	87	10,940	4.92	538
150.1 - 200---	2	343.5	171.8	87	8,950	5.07	454
200.1 - 300---	2	543.0	271.5	81	8,579	5.15	442
300.1 - 400---	1	333.2	333.2	86	11,941	4.68	559
			BROWN SWISS				
5.0 - 25---	32	515.4	16.1	85	10,864	4.09	444
25.1 - 50---	68	2,278.4	33.5	85	11,943	4.04	483
50.1 - 75---	8	495.9	62.0	87	11,838	4.00	474
100.1 - 150---	1	106.6	106.6	77	9,289	4.04	375
			MILKING SHORTHORN				
5.0 - 25---	6	78.4	13.1	78	8,778	3.71	326
25.1 - 50---	3	84.8	28.3	87	11,675	3.79	442
50.1 - 75---	1	59.8	59.8	82	9,440	3.23	305
			MIXED AND OTHER BREEDS				
5.0 - 25---	113	2,137.6	18.9	85	11,830	3.92	464
25.1 - 50---	342	12,585.8	36.8	85	12,244	3.90	477
50.1 - 75---	115	6,899.8	60.0	85	12,799	3.82	489
75.1 - 100---	36	3,056.6	84.9	85	13,109	3.84	504
100.1 - 150---	22	2,708.1	123.1	85	13,266	3.78	501
150.1 - 200---	15	2,532.8	168.9	85	12,704	3.72	473
200.1 - 300---	9	2,208.1	245.3	83	12,459	3.81	475
300.1 - 400---	3	1,035.6	345.2	85	13,173	4.00	527
400.1 - 500---	2	946.4	473.2	83	16,556	3.76	623
750.1 - 1,000---	1	840.0	840.0	88	14,705	3.54	520
1,000.1 - 1,250---	1	1,200.2	1,200.2	87	15,452	3.43	530
2,000.1 - 3,000---	1	2,055.0	2,055.0	74	11,346	3.90	443

1/ RECORDS ARE ONLY FROM PLANS INCLUDING BOTH MILK WEIGHTS AND FAT SAMPLING.

TABLE 10.--STATE AND NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE NONOFFICIAL HERD RECORDS,
MAY 1, 1978 - APRIL 30, 1979 1/

STATE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FOR-AGE	DRY FOR-AGE	PAS-TURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
ALABAMA----------	4	574.1	143.5	87	12,529	3.60	451	56	147	14	71	396	750	5.97	1,405	654
ALASKA-----------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
ARIZONA----------	---	---	---	---	---	---	---	--	---	--	---	---	---	---	---	---
ARKANSAS---------	51	3,422.2	67.1	83	12,770	3.48	444	55	63	36	192	350	541	4.26	1,330	789
CALIFORNIA-------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	--
COLORADO---------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
CONNECTICUT------	15	617.9	41.2	88	14,246	3.97	565	59	199	16	86	403	665	4.73	1,656	992
DELAWARE---------	4	375.0	93.8	86	14,350	3.49	501	53	211	14	0	392	608	4.33	1,613	1,005
FLORIDA----------	1	34.7	34.7	86	12,536	3.41	428	18	0	41	366	760	970	7.74	1,610	640
GEORGIA----------	5	370.9	74.2	86	12,356	3.88	480	57	124	19	258	364	609	5.08	1,474	865
HAWAII-----------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
IDAHO------------	27	1,786.2	66.2	85	14,124	3.69	521	50	69	85	49	282	533	3.78	1,438	905
ILLINOIS---------	205	10,217.1	49.8	85	13,475	3.73	502	50	96	31	67	262	487	3.64	1,368	881
INDIANA----------	134	6,612.9	49.4	86	13,487	3.70	499	58	141	29	77	344	585	4.25	1,477	892
IOWA-------------	676	27,533.5	40.7	84	12,441	3.71	462	45	90	46	53	222	448	3.64	1,223	775
KANSAS-----------	123	6,357.6	51.7	84	12,922	3.59	464	57	82	47	86	307	549	4.30	1,298	750
KENTUCKY---------	18	1,112.5	61.8	84	13,716	3.57	489	59	133	18	193	409	603	4.45	1,429	826
LOUISIANA--------	3	205.8	68.6	86	12,208	3.29	402	61	71	14	365	431	638	5.32	1,386	748
MAINE------------	26	1,106.2	42.5	86	13,110	3.66	480	60	88	36	105	410	645	4.93	1,507	862
MARYLAND---------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
MASSACHUSETTS----	17	636.2	37.4	86	13,031	3.68	480	51	126	35	95	339	601	4.66	1,535	934
MICHIGAN---------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
MINNESOTA--------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
MISSISSIPPI------	1	141.0	141.0	87	13,785	3.97	547	92	156	10	212	590	790	5.73	1,583	793
MISSOURI---------	166	8,806.8	53.1	84	12,603	3.63	457	53	77	39	131	308	525	4.22	1,270	745
MONTANA----------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
NEBRASKA---------	49	2,517.2	51.4	84	12,974	3.54	459	50	81	56	62	235	443	3.45	1,266	822
NEW HAMPSHIRE----	21	718.4	34.2	86	12,437	3.77	469	47	107	43	82	322	559	4.52	1,443	884
NEW JERSEY-------	5	189.5	37.9	88	13,410	3.86	517	39	52	29	13	231	557	4.31	1,545	988
NEW MEXICO-------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
NEW YORK---------	2,195	120,517.7	54.9	86	14,324	3.67	525	53	127	27	85	352	610	4.29	1,569	959
NORTH CAROLINA---	19	1,092.9	57.5	87	14,633	3.64	533	60	197	12	183	450	708	4.88	1,688	980
NORTH DAKOTA-----	40	2,493.7	62.3	83	12,647	3.54	448	47	78	52	52	223	468	3.70	1,189	721
OHIO-------------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
OKLAHOMA---------	54	3,723.0	68.9	81	12,198	3.65	445	49	39	48	162	286	559	4.71	1,267	707
OREGON-----------	15	1,049.1	69.9	86	14,429	3.86	557	61	142	52	63	393	653	4.56	1,536	883
PENNSYLVANIA-----	1,558	73,833.9	47.4	85	13,732	3.74	513	55	143	30	80	340	630	4.61	1,507	878
SOUTH CAROLINA---	1	106.1	106.1	84	6,312	3.55	224	41	166	0	62	290	500	7.92	735	235
SOUTH DAKOTA-----	252	11,716.3	46.5	83	12,692	3.67	466	50	90	49	58	225	426	3.40	1,250	825
TENNESSEE--------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
TEXAS------------	15	2,067.0	137.8	86	12,548	3.57	448	62	62	42	146	394	633	5.11	1,456	822
UTAH-------------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
VERMONT----------	232	11,835.5	51.0	85	13,115	3.74	490	48	90	28	103	349	585	4.48	1,513	927
VIRGINIA---------	28	1,538.0	54.9	86	15,041	3.56	536	54	165	17	161	398	688	4.58	1,622	934
WASHINGTON-------	46	5,438.0	118.2	86	15,185	3.64	553	69	104	43	78	368	637	4.23	1,610	974
WEST VIRGINIA----	8	280.8	35.1	85	12,267	3.93	482	49	86	25	183	312	527	4.34	1,394	867
WISCONSIN--------	---	---	---	--	---	---	---	--	---	--	---	---	---	---	---	---
UNITED STATES--	6,014	309,027.7	51.4	85	13,695	3.69	505	53	118	33	84	326	581	4.27	1,473	891

1/ DASHES INDICATE HERD RECORDS ARE INCLUDED IN PLAN, BUT NONE ARE COMPLETE. RECORDS ARE ONLY FROM PLANS INCLUDING BOTH MILK WEIGHTS AND FAT SAMPLING.

TABLE 11.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE NONOFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL, MAY 1, 1978 - APRIL 30, 1979 1/

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FORAGE	DRY FORAGE	PASTURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
AYRSHIRE																
6,500 - 7,499---	1	43.7	43.7	84	6,568	4.64	305	9	117	36	---	40	240	3.65	681	441
7,500 - 8,499---	2	77.3	38.7	77	8,403	3.44	289	28	146	17	101	195	475	5.65	903	428
8,500 - 9,499---	2	71.7	35.9	77	9,370	3.77	353	36	84	34	109	198	391	4.18	1,034	643
9,500 - 10,499---	9	355.7	39.5	84	9,862	4.04	398	45	101	38	156	264	487	4.95	1,114	627
10,500 - 11,499---	9	249.7	27.7	83	10,793	3.97	429	46	136	36	161	328	537	4.98	1,201	665
11,500 - 12,499---	7	206.3	29.5	86	12,023	3.93	473	41	123	40	119	273	538	4.47	1,342	804
12,500 - 13,499---	6	273.4	45.6	85	12,665	4.04	512	46	65	55	161	307	514	4.06	1,377	863
13,500 - 14,499---	4	172.7	43.2	87	13,912	4.11	572	48	110	61	147	320	522	3.75	1,508	986
TOTAL OR AVG.----ALL REC.--	40	1,450.5	36.3	84	11,139	3.99	445	43	104	43	145	277	499	4.54	1,230	739
GUERNSEY																
LESS THAN 6,500---	4	140.1	35.0	81	6,155	4.39	270	33	70	44	143	170	322	5.22	680	358
6,500 - 7,499---	6	298.4	49.7	80	7,179	4.76	342	29	76	32	230	161	344	4.79	856	511
7,500 - 8,499---	10	413.3	41.3	84	8,122	4.60	374	35	82	35	152	192	379	4.66	925	546
8,500 - 9,499---	12	446.6	37.2	85	8,984	4.71	423	36	108	32	134	220	439	4.90	1,042	603
9,500 - 10,499---	16	597.5	37.3	86	10,006	4.58	458	40	82	49	151	229	446	4.45	1,192	746
10,500 - 11,499---	13	672.7	51.7	86	10,953	4.60	504	48	97	34	95	298	518	4.73	1,297	779
11,500 - 12,499---	9	407.4	45.3	85	11,877	4.39	521	50	56	41	155	285	500	4.21	1,371	870
13,500 - 14,499---	1	27.5	27.5	90	14,418	4.87	702	43	--	46	165	280	540	3.75	1,752	1,212
TOTAL OR AVG.----ALL REC.--	71	3,003.5	42.3	85	9,679	4.59	444	40	85	38	147	237	446	4.64	1,134	688
HOLSTEIN																
LESS THAN 6,500---	6	286.4	47.7	84	6,079	3.59	218	31	147	41	75	186	409	6.66	653	244
6,500 - 7,499---	12	358.3	29.9	80	7,070	3.69	261	28	108	35	150	166	389	5.51	740	351
7,500 - 8,499---	35	1,433.3	41.0	80	8,126	3.67	298	35	90	43	143	195	428	5.29	826	398
8,500 - 9,499---	84	3,651.8	43.5	81	9,073	3.71	337	37	96	43	147	212	432	4.76	931	499
9,500 - 10,499---	213	10,495.5	49.3	81	10,071	3.65	368	41	99	40	147	231	460	4.57	1,033	573
10,500 - 11,499---	393	18,528.8	47.1	83	11,067	3.67	406	44	107	41	148	252	492	4.45	1,155	663
11,500 - 12,499---	625	29,881.0	47.8	84	12,040	3.67	442	47	115	40	136	278	516	4.29	1,268	752
12,500 - 13,499---	884	45,985.5	52.0	85	13,019	3.67	478	50	126	38	132	304	553	4.23	1,386	833
13,500 - 14,499---	1,035	53,242.8	51.4	85	14,005	3.66	513	53	127	39	131	327	587	4.18	1,498	911
14,500 - 15,499---	939	52,593.5	56.0	86	14,976	3.65	547	57	142	33	125	362	626	4.17	1,617	991
15,500 - 16,499---	597	34,109.6	57.1	86	15,952	3.64	581	62	151	32	127	394	660	4.14	1,738	1,078
16,500 - 17,499---	317	17,601.7	55.5	87	16,924	3.62	612	63	144	34	122	400	669	3.95	1,831	1,162
17,500 - 18,499---	115	6,488.3	56.4	88	17,917	3.57	640	69	142	33	116	445	720	3.99	1,921	1,201
18,500 - 19,499---	34	1,853.9	54.5	88	18,819	3.61	680	67	163	33	134	456	730	3.88	2,056	1,326
19,500 - 20,499---	8	335.3	41.9	88	20,004	3.54	708	69	129	52	113	411	696	3.48	2,160	1,464
20,500 - 21,499---	2	83.4	41.7	86	21,124	3.82	807	73	56	56	148	514	820	3.88	2,206	1,386
TOTAL OR AVG.----ALL REC.--	5,299	276,929.1	52.3	85	13,920	3.66	509	54	130	37	131	330	585	4.22	1,490	905
JERSEY																
LESS THAN 6,500---	5	103.7	20.7	74	5,365	4.42	237	24	59	38	146	136	257	4.77	590	333
6,500 - 7,499---	10	358.3	35.8	84	7,170	4.70	337	43	59	31	248	276	417	5.83	825	408
7,500 - 8,499---	25	793.0	31.7	84	8,039	4.79	385	33	52	46	178	224	398	4.96	992	595
8,500 - 9,499---	34	1,277.8	37.6	85	8,968	4.79	430	39	73	36	172	253	435	4.85	1,112	678
9,500 - 10,499---	38	1,445.1	38.0	86	10,092	4.83	487	44	89	28	148	290	457	4.53	1,223	766
10,500 - 11,499---	13	620.5	47.7	87	10,971	4.98	546	47	95	32	160	313	527	4.81	1,394	867
11,500 - 12,499---	4	205.9	51.5	85	12,030	4.49	540	49	50	36	188	330	509	4.23	1,474	965
12,500 - 13,499---	3	155.4	51.8	89	12,805	4.50	576	50	89	25	127	376	535	4.18	1,645	1,110
TOTAL OR AVG.----ALL REC.--	132	4,959.7	37.6	85	9,435	4.79	452	41	77	34	170	273	448	4.79	1,160	712
BROWN SWISS																
LESS THAN 6,500---	1	20.4	20.4	71	5,988	3.87	232	23	102	27	28	80	270	4.51	587	317
6,500 - 7,499---	2	47.3	23.7	79	7,350	4.22	310	40	28	58	173	262	444	6.04	778	333
7,500 - 8,499---	1	47.2	47.2	76	8,207	3.87	318	62	--	52	132	280	540	6.58	867	327
8,500 - 9,499---	6	324.5	54.1	81	9,069	4.01	364	44	76	41	220	229	444	4.90	984	540
9,500 - 10,499---	2	41.1	20.6	86	10,260	3.63	372	36	49	53	320	186	418	4.08	874	456
10,500 - 11,499---	5	145.8	29.2	87	10,953	3.92	429	52	66	49	163	297	483	4.38	1,130	647
11,500 - 12,499---	4	88.5	22.1	87	12,181	3.97	483	54	82	34	205	320	521	4.27	1,291	770
12,500 - 13,499---	3	108.5	36.2	85	12,880	4.09	527	48	91	48	80	227	501	3.87	1,382	882
13,500 - 14,499---	1	37.2	37.2	86	13,527	4.35	588	44	--	63	124	300	520	3.84	1,571	1,051
TOTAL OR AVG.----ALL REC.--	25	860.5	34.4	83	10,224	4.00	409	47	73	45	179	252	469	4.68	1,083	614

SEE FOOTNOTE AT END OF TABLE.

TABLE 11.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE NONOFFICIAL HERD RECORDS, BY BREED AND MILK LEVEL, MAY 1, 1978 - APRIL 30, 1979 1/--CON.

MILK LEVEL	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FOR-AGE	DRY FOR-AGE	PAS-TURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
LB	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
							MILKING SHORTHORN									
8,500 - 9,499---	2	68.0	34.0	81	9,396	3.29	309	24	13	59	183	161	442	4.70	928	487
10,500 - 11,499---	1	5.1	5.1	95	11,417	3.62	413	39	110	--	---	140	250	2.19	1,091	841
11,500 - 12,499---	1	11.4	11.4	82	11,629	3.57	415	33	54	84	184	250	540	4.64	1,248	708
TOTAL OR AVG.----ALL REC.—	4	84.5	21.1	82	9,820	3.36	330	26	26	63	183	172	443	4.54	981	538
							MIXED AND OTHER BREEDS									
LESS THAN 6,500---	1	13.1	13.1	81	5,693	5.34	304	31	67	29	180	131	240	4.22	661	421
6,500 - 7,499---	2	36.8	18.4	84	6,637	4.49	298	43	131	21	238	230	420	6.33	728	308
7,500 - 8,499---	20	817.2	40.9	84	8,132	4.22	343	35	104	32	128	219	449	5.51	914	465
8,500 - 9,499---	26	1,171.5	45.1	84	9,129	4.25	388	41	121	30	130	252	486	5.32	1,046	560
9,500 - 10,499---	37	1,552.0	41.9	82	10,036	3.88	389	43	115	36	118	266	531	5.28	1,094	563
10,500 - 11,499---	48	2,430.7	50.6	84	10,972	3.81	418	53	131	37	113	272	555	5.06	1,197	642
11,500 - 12,499---	66	2,898.9	43.9	85	12,075	3.78	457	53	134	32	112	317	596	4.94	1,317	721
12,500 - 13,499---	79	4,075.9	51.6	85	13,071	3.79	495	49	150	34	99	309	594	4.54	1,437	844
13,500 - 14,499---	73	3,949.1	54.1	85	14,001	3.81	533	55	149	30	111	331	640	4.57	1,550	910
14,500 - 15,499---	57	3,042.2	53.4	86	14,955	3.71	555	59	156	25	85	338	627	4.19	1,628	1,001
15,500 - 16,499---	19	953.6	50.2	86	15,923	3.71	590	67	133	32	108	398	698	4.40	1,753	1,055
16,500 - 17,499---	9	491.2	54.6	87	16,903	3.61	611	57	143	27	73	356	626	3.71	1,852	1,226
17,500 - 18,499---	6	307.7	51.3	88	17,854	3.78	675	58	144	26	43	341	630	3.53	1,959	1,330
TOTAL OR AVG.----ALL REC.--	443	21,739.9	49.1	85	12,780	3.80	486	52	139	32	106	310	592	4.71	1,405	813

1/ DASHES INDICATE FEED NOT INCLUDED IN RATION. RECORDS ARE ONLY FROM PLANS INCLUDING BOTH MILK WEIGHTS AND FAT SAMPLING.

TABLE 12.--NATIONAL COW-YEAR TOTALS AND AVERAGES FOR COMPLETE NONOFFICIAL HERD RECORDS, BY BREED AND HERD SIZE, MAY 1, 1978 - APRIL 30, 1979 1/

HERD SIZE	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FORAGE	DRY FORAGE	PASTURE DAYS	COST OF CONC	FEED COST	FEED COST/ CWT MILK	VALUE OF PROD	INCOME OVER FEED COST
NUMBER	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
AYRSHIRE																
5.0 - 25---	13	214.3	16.5	83	11,407	3.90	445	42	88	42	171	276	476	4.23	1,191	714
25.1 - 50---	18	657.9	36.6	83	10,436	3.98	415	38	116	34	137	266	482	4.64	1,184	702
50.1 - 75---	7	405.2	57.9	85	12,198	4.06	495	50	114	55	144	331	564	4.69	1,341	777
75.1 - 100---	2	173.1	86.6	86	10,999	4.03	443	41	21	76	---	196	443	4.18	1,191	748
GUERNSEY																
5.0 - 25---	12	219.9	18.3	86	8,872	4.60	408	43	87	40	155	234	420	4.72	1,029	609
25.1 - 50---	42	1,566.7	37.3	85	9,811	4.61	452	40	74	46	153	230	442	4.54	1,146	704
50.1 - 75---	12	735.6	61.3	85	9,159	4.60	421	38	101	28	157	225	420	4.65	1,084	663
75.1 - 100---	3	263.7	87.9	80	9,958	4.44	442	41	103	42	217	263	475	4.81	1,178	703
100.1 - 150---	2	217.6	108.8	85	10,780	4.55	490	49	90	13	27	302	541	5.02	1,247	706
HOLSTEIN																
5.0 - 25---	451	9,079.5	20.1	85	13,250	3.70	490	51	93	48	144	301	538	4.09	1,381	843
25.1 - 50---	2,766	104,980.0	38.0	85	13,700	3.66	502	52	113	41	135	321	574	4.20	1,456	882
50.1 - 75---	1,361	81,989.9	60.2	85	13,982	3.65	511	53	135	35	132	329	585	4.21	1,501	916
75.1 - 100---	410	35,027.3	85.4	85	14,117	3.63	512	55	138	32	126	335	590	4.17	1,516	926
100.1 - 150---	234	27,895.1	119.2	85	14,250	3.65	520	56	156	26	113	346	604	4.26	1,544	941
150.1 - 200---	44	7,456.5	169.5	85	14,105	3.64	514	57	175	32	145	346	611	4.37	1,531	920
200.1 - 300---	16	3,554.8	222.2	85	14,463	3.70	535	61	160	39	99	387	655	4.60	1,584	929
300.1 - 400---	11	3,744.0	340.4	85	14,934	3.68	550	61	150	47	133	387	685	4.63	1,561	876
400.1 - 500---	4	1,828.9	457.2	85	13,430	3.54	475	79	170	46	119	323	517	3.82	1,506	989
500.1 - 750---	2	1,373.1	686.6	87	15,258	3.68	561	77	177	25	---	474	745	4.88	1,659	914
JERSEY																
5.0 - 25---	35	477.8	13.7	82	8,377	4.73	396	34	68	39	152	217	402	4.82	993	591
25.1 - 50---	68	2,452.6	36.6	86	9,485	4.73	449	41	67	35	156	271	446	4.74	1,166	719
50.1 - 75---	20	1,150.9	57.5	84	9,086	4.75	432	38	81	37	178	250	419	4.64	1,127	708
75.1 - 100---	6	541.5	90.3	87	10,451	5.06	529	50	109	25	174	334	525	5.11	1,287	762
100.1 - 150---	3	336.9	112.3	87	10,130	4.89	495	52	76	22	249	346	499	5.16	1,267	768
BROWN SWISS																
5.0 - 25---	8	100.2	12.5	83	9,852	4.07	401	43	87	33	113	223	465	4.79	1,066	602
25.1 - 50---	13	447.9	34.5	82	10,170	3.94	401	45	72	48	195	235	423	4.27	1,043	620
50.1 - 75---	3	205.8	68.6	[illegible]	11,006	4.07	448	49	100	39	109	282	524	4.81	1,200	676
100.1 - 150---	1	106.6	106.6		9,289	4.04	375	53	13	60	300	290	560	6.03	1,046	486
MILKING SHORTHORN																
5.0 - 25---	3	24.7	8.2	82	10,738	3.63	390	35	71	87	184	224	427	3.98	1,085	658
50.1 - 75---	1	59.8	59.8	82	9,440	3.23	305	22	13	55	183	150	450	4.77	938	488
MIXED AND OTHER BREEDS.																
5.0 - 25---	56	1,063.3	19.0	85	11,768	3.89	458	50	75	46	153	295	527	4.60	1,240	713
25.1 - 50---	243	9,055.8	37.3	85	12,588	3.82	481	50	123	36	115	308	595	4.81	1,377	782
50.1 - 75---	93	5,623.5	60.5	85	12,975	3.77	489	51	153	32	105	306	598	4.65	1,432	834
75.1 - 100---	25	2,127.1	85.1	85	13,288	3.82	507	48	155	24	68	308	558	4.28	1,464	906
100.1 - 150---	15	1,840.7	122.7	84	12,882	3.84	495	64	168	19	105	364	658	5.19	1,440	781
150.1 - 200---	9	1,461.2	162.4	85	12,959	3.70	480	65	155	19	55	290	555	4.39	1,430	876
200.1 - 300---	1	231.9	231.9	82	14,060	3.43	482	65	139	30	---	290	750	5.33	1,545	795
300.1 - 400---	1	338.2	338.2	83	12,920	3.96	511	46	201	21	---	260	520	4.02	1,466	946

1/ DASHES INDICATE FEED NOT INCLUDED IN RATION. RECORDS ARE ONLY FROM PLANS INCLUDING BOTH MILK WEIGHTS AND FAT SAMPLING.

TABLE 13.-- SUMMARY OF COW-YEAR TOTALS AND AVERAGES FOR ALL OFFICIAL HERD RECORDS, 1940-79 1/

TESTING YEARS	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
1939-40----	---	545,382	---	--	8,133	4.07	331
1940-41----	---	591,103	---	--	8,225	4.07	335
1941-42----	---	514,758	---	--	8,323	4.07	339
1942-43----	---	375,914	---	--	8,325	4.06	338
1943-44----	---	383,337	---	--	8,296	4.05	336
1944-45----	---	384,360	---	--	8,592	4.03	346
1945-46----	---	413,554	---	--	8,635	4.04	349
1946-47----	---	533,061	---	--	8,638	4.03	348
1947-48----	---	620,385	---	--	8,675	4.03	350
1948-49----	---	729,150	---	--	8,907	4.03	359
1949-50----	---	836,922	---	--	9,172	4.03	370
1950-51----	---	885,859	---	--	9,195	4.02	370
1951-52----	---	928,376	---	--	9,192	3.98	366
1952-53----	---	1,020,326	---	--	9,253	3.98	368
1953-54----	---	1,079,557	---	--	9,363	3.97	372
1954-55----	---	1,175,378	---	--	9,502	3.95	375
1955-56----	---	1,229,971	---	--	9,713	3.94	383
1956-57----	---	1,256,129	---	--	9,894	3.93	389
1957-58----	---	1,345,750	---	--	10,068	3.91	394
1958-59----	---	1,406,665	---	--	10,327	3.88	401
1959-60 2/-	---	1,343,725	---	--	10,561	3.87	409
1960-61----	28,649	1,280,785	44.7	--	10,796	3.87	418
1961-62----	32,794	1,531,826	46.7	--	11,032	3.86	426
1962-63----	35,378	1,674,803	47.3	--	11,286	3.85	434
1963-64----	35,689	1,746,475	48.9	--	11,685	3.83	447
1964-65----	35,604	1,821,252	51.2	--	11,976	3.82	457
1965-66----	34,886	1,852,533	53.1	--	12,127	3.81	462
1966-67----	34,515	1,890,024	54.8	--	12,307	3.80	468
1967-68----	33,560	1,924,200	57.3	85	12,397	3.80	471
1968-69----	33,130	1,959,647	59.2	85	12,553	3.79	476
1969-70----	31,138	1,937,390	62.2	85	12,750	3.79	483
1970-71----	30,699	1,995,463	65.0	85	13,000	3.76	489
1971-72----	30,190.	2,050,132	67.9	85	13,226	3.75	496
1972-73----	30,826	2,177,626	70.6	85	13,287	3.76	499
1973-74----	30,280	2,221,349	73.4	85	13,163	3.75	493
1974-75----	29,543	2,216,817	75.0	85	13,421	3.76	505
1975-76----	29,634	2,240,752	75.6	86	13,632	3.75	511
1976-77----	30,764	2,373,261	77.1	86	14,435	3.73	539
1977-78----	31,783	2,476,946	77.9	86	14,631	3.70	542
1978-79----	32,831	2,571,361	78.3	86	14,644	3.70	542

1/ DASHES INDICATE DATA UNAVAILABLE.
2/ NATIONAL TESTING YEAR CHANGED IN 1960 TO BEGIN MAY 1. AVERAGES OF 1959 AND 1961 USED.

TABLE 14.--SUMMARY OF COW-YEAR TOTALS AND AVERAGES FOR COMPLETE OFFICIAL HERD RECORDS, 1940-79 1/ 2/

TESTING YEARS 3/	HERDS 4/	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FORAGE	DRY FORAGE	PASTURE DAYS	VALUE OF PROD	COST OF CONC	FEED COST	FEED COST/ CWT MILK	INCOME OVER FEED COST
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
1939-40---	19,330	467,775	24.2	--	8,049	4.05	326	--	---	--	---	165	32	68	0.84	97
1940-41---	20,590	500,340	24.3	--	8,182	4.06	332	--	---	--	---	176	34	70	.86	106
1941-42---	17,341	430,057	24.8	--	8,271	4.06	336	--	---	--	---	206	42	82	.99	124
1942-43---	12,006	306,142	25.5	--	8,219	4.06	334	--	---	--	---	245	53	99	1.20	146
1943-44---	11,433	308,678	27.0	--	8,141	4.05	330	--	---	--	---	274	63	118	1.45	156
1944-45---	11,204	304,748	27.2	--	8,434	4.02	339	--	---	--	---	302	68	128	1.49	174
1945-46---	11,795	318,461	27.0	--	8,440	4.05	342	--	---	--	---	314	70	130	1.54	184
1946-47---	15,566	418,738	26.9	--	8,454	4.02	340	--	---	--	---	352	79	141	1.67	211
1947-48---	18,573	494,036	26.6	--	8,429	4.01	338	--	---	--	---	388	95	165	1.96	223
1948-49---	22,312	586,815	26.3	--	8,701	4.02	350	--	---	--	---	390	85	156	1.79	234
1949-50---	24,841	675,685	27.2	--	8,949	4.01	359	--	---	--	---	359	76	147	1.64	212
1950-51---	26,134	721,311	27.6	--	8,983	4.02	361	--	---	--	---	370	81	154	1.71	216
1951-52---	26,423	768,916	29.1	--	9,015	3.97	358	--	---	--	---	399	87	165	1.83	234
1952-53---	18,557	525,346	28.3	--	9,069	3.96	359	30	56	37	168	461	101	194	2.14	267
1953-54---	26,834	748,234	27.9	--	9,117	3.96	361	28	55	37	174	434	93	188	2.06	246
1954-55---	28,727	822,254	28.6	--	9,261	3.94	365	28	61	37	178	429	89	183	1.98	246
1955-56---	28,254	849,344	30.1	--	9,470	3.93	372	29	64	39	174	433	86	181	1.91	252
1956-57---	27,133	863,275	31.8	--	9,621	3.92	377	30	66	39	173	448	88	183	1.90	265
1957-58---	27,525	900,269	32.7	--	9,787	3.91	383	31	69	40	171	462	92	190	1.94	272
1958-59---	27,796	902,074	32.5	--	10,042	3.89	391	33	75	40	174	475	93	195	1.94	280
1959-60---	23,220	795,892	34.3	--	10,045	3.89	391	33	76	40	169	479	93	196	1.95	283
1960-61---	18,644	689,710	37.0	--	10,048	3.88	390	32	78	39	163	485	94	198	1.97	287
1961-62---	22,853	882,827	38.6	--	10,676	3.87	413	36	82	40	175	502	103	207	1.94	295
1962-63---	27,093	1,089,290	40.2	84	10,983	3.85	423	39	92	40	156	501	113	222	2.02	279
1963-64---	27,893	1,173,099	42.1	84	11,428	3.84	439	42	98	38	151	521	120	237	2.07	284
1964-65---	28,237	1,229,676	43.5	85	11,744	3.82	449	44	102	38	151	539	127	244	2.08	295
1965-66---	28,013	1,260,621	45.0	85	11,885	3.81	453	45	108	36	114	559	133	256	2.15	303
1966-67---	27,483	1,282,357	46.7	85	12,030	3.82	459	47	113	36	5/124	631	143	265	2.20	366
1967-68---	25,447	1,257,600	49.4	85	12,121	3.81	462	48	120	34	134	667	149	271	2.27	395
1968-69---	25,208	1,271,983	50.5	85	12,223	3.80	465	49	5/122	33	132	700	146	266	2.21	434
1969-70---	23,130	1,227,860	53.1	85	12,428	3.79	471	50	124	32	129	736	153	273	2.23	463
1970-71---	22,824	1,240,414	54.3	85	12,659	3.77	477	51	116	33	120	767	165	287	2.30	480
1971-72---	20,987	1,211,464	57.7	85	12,775	3.75	479	52	116	30	122	791	174	301	2.39	490
1972-73---	22,628	1,322,782	58.5	85	12,801	3.76	481	52	118	30	113	821	187	321	2.54	500
1973-74---	20,083	1,217,462	60.6	85	12,604	3.74	472	51	118	29	116	989	262	422	3.40	567
1974-75---	20,444	1,297,541	63.5	85	13,024	3.76	489	51	123	29	110	1,114	318	527	4.11	587
1975-76---	20,470	1,318,140	64.4	86	13,326	3.74	498	52	126	28	113	1,229	315	557	4.23	672
1976-77---	17,642	1,210,810	68.6	86	13,849	3.75	519	55	129	28	112	1,371	358	609	4.46	762
1977-78---	18,392	1,299,256	70.6	86	13,978	3.71	518	57	126	28	113	1,404	355	612	4.44	792
1978-79---	18,587	1,310,083	70.5	86	14,129	3.70	522	58	126	30	109	1,555	372	629	4.49	927

1/ DASHES INDICATE DATA UNAVAILABLE.

2/ ONLY COMPLETE RECORDS (OR THOSE REPORTED AS COMPLETE) USED HERE FOR 1952-53 THROUGH 1978-79. NUMBER OF HERDS AND COWS WILL DIFFER FROM NUMBER ENROLLED. COWS AND HERDS FROM STATES NOT REPORTING COMPLETE RECORDS NOT INCLUDED.

3/ MULTIPLE YEARS GIVEN TO MATCH NCDHIP TESTING YEAR OF MAY 1 - APR. 30.

4/ FOR 1939-40 THROUGH 1945-46, HERD NUMBERS ESTIMATED, USING COWS PER HERD ON TEST ON JAN. 1 OF TESTING YEAR; FOR 1946-47 THROUGH 1951-52, HERD NUMBERS GIVEN AS REPORTED IN EACH ANNUAL REPORT (ALL HERDS ON TEST).

5/ DATA UNAVAILABLE; AVERAGES OF ADJACENT YEARS USED.

TABLE 15.--SUMMARY OF COW-YEAR TOTALS AND AVERAGES FOR ALL NONOFFICIAL HERD RECORDS, 1963-79 1/

TESTING YEARS	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
1962-63-----	14,761	423,545	28.7	--	10,606	3.73	396
1963-64-----	13,574	385,493	28.4	--	10,885	3.71	404
1964-65-----	18,409	559,608	30.4	--	11,402	3.71	423
1965-66-----	19,172	598,133	31.2	--	11,472	3.70	425
1966-67-----	17,912	575,816	32.1	--	11,607	3.72	432
1967-68-----	17,318	592,647	34.2	84	11,847	3.72	441
1968-69-----	17,908	614,939	34.3	84	11,932	3.72	444
1969-70-----	16,971	611,819	36.1	84	12,185	3.72	453
1970-71-----	16,569	612,080	36.9	84	12,413	3.71	460
1971-72-----	16,107	618,088	38.4	84	12,544	3.74	466
1972-73-----	16,183	631,269	39.0	84	12,488	3.75	468
1973-74-----	16,037	639,964	39.9	85	12,353	3.75	463
1974-75-----	14,704	610,910	41.5	85	12,503	3.80	475
1975-76-----	16,784	753,089	44.9	85	13,104	3.79	497
1976-77-----	17,662	815,988	46.2	85	13,539	3.76	509
1977-78-----	18,675	891,738	47.8	85	13,771	3.75	516
1978-79-----	19,248	933,631	48.5	85	13,847	3.77	522

1/ DASHES INDICATE DATA UNAVAILABLE.

TABLE 16.--SUMMARY OF COW-YEAR TOTALS AND AVERAGES FOR COMPLETE NONOFFICIAL HERD RECORDS, 1963-79

TESTING YEARS	HERDS	COW-YEARS	COWS PER HERD	DAYS IN MILK	MILK	FAT	FAT	CONC	SUCC FOR-AGE	DRY FOR-AGE	PAS-TURE DAYS	VALUE OF PROD	COST OF CONC	FEED COST	FEED COST/ CWT MILK	INCOME OVER FEED COST
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB	CWT	CWT	CWT	NUMBER	DOL	DOL	DOL	DOL	DOL
1962-63-----	4,165	136,781	32.8	83	10,785	3.72	402	37	83	46	147	460	113	219	2.03	241
1963-64-----	3,033	80,172	26.4	83	10,987	3.74	411	40	80	44	143	427	103	204	1.86	223
1964-65-----	6,355	197,385	31.0	84	11,470	3.72	427	41	89	44	1/137	486	119	228	1.99	258
1965-66-----	7,096	224,616	31.6	84	11,574	3.72	430	42	95	42	1/137	499	121	237	2.05	262
1966-67-----	7,537	243,943	32.4	84	11,645	3.72	433	43	98	43	1/137	563	130	242	2.08	321
1967-68-----	5,928	212,380	35.8	84	11,834	3.72	440	44	103	40	130	615	142	259	2.21	357
1968-69-----	7,614	263,703	34.6	84	11,953	3.71	443	46	1/104	41	123	633	133	243	2.05	391
1969-70-----	7,134	259,195	36.3	84	12,102	3.69	446	47	104	40	116	666	139	249	2.08	417
1970-71-----	6,792	254,890	37.5	84	12,292	3.68	452	48	93	39	106	696	147	258	2.11	439
1971-72-----	6,324	246,148	38.9	84	12,327	3.67	453	49	90	38	106	709	152	265	2.17	444
1972-73-----	6,570	257,026	39.1	84	12,214	3.71	453	49	94	38	96	728	156	277	2.30	450
1973-74-----	6,125	247,527	40.4	84	12,151	3.69	448	48	94	38	97	899	217	367	3.05	533
1974-75-----	5,562	234,692	42.2	84	12,303	3.72	458	47	103	38	90	967	271	478	3.93	489
1975-76-----	7,079	326,135	46.1	85	12,980	3.71	481	49	110	37	92	1,149	283	540	4.20	610
1976-77-----	5,605	280,566	50.1	85	13,166	3.71	488	50	112	33	95	1,266	315	563	4.32	703
1977-78-----	5,876	300,951	51.2	85	13,448	3.68	495	51	116	32	94	1,307	311	569	4.27	738
1978-79-----	6,014	309,028	51.4	85	13,695	3.69	505	53	118	33	84	1,473	326	581	4.27	891

1/ DATA UNAVAILABLE; AVERAGES OF ADJACENT YEARS USED.

TABLE 17.--COMPARISON OF PRODUCTION OF COWS ON OFFICIAL TEST, NONOFFICIAL TEST, AND ALL OTHER COWS, 1961-78 1/

TESTING YEARS 2/	OFFICIAL				NONOFFICIAL				ALL OTHER COWS 3/ 4/ 5/			SUPERIORITY OF OFFICIAL COWS 4/		SUPERIORITY OF NONOFFICIAL COWS 4/	
	HERDS	COW-YEARS	MILK	FAT	HERDS	COW-YEARS	MILK	FAT	COW-YEARS 6/	MILK	FAT	MILK	FAT	MILK	FAT
	NUMBER	NUMBER	LB	LB	NUMBER	NUMBER	LB	LB	NUMBER	LB	LB	LB	LB	LB	LB
1960-61--	42,558	1,867,469	10,796	418	24,498	655,885	---	---	14,855,646	6,721	251	4,075	167	---	---
1961-62--	42,034	1,958,355	11,032	426	24,954	698,302	---	---	14,385,843	6,919	257	4,113	169	---	---
1962-63--	41,937	2,006,534	11,286	434	25,376	726,478	10,606	396	13,817,988	6,844	255	4,442	179	3,762	141
1963-64--	40,670	2,010,144	11,685	447	25,598	752,229	10,885	404	13,206,127	7,148	263	4,537	184	3,737	141
1964-65--	40,075	2,087,581	11,976	457	26,604	818,406	11,402	423	12,409,013	7,353	270	4,623	187	4,049	153
1965-66--	38,879	2,058,592	12,127	462	26,259	839,839	11,472	425	11,613,569	7,530	276	4,597	186	3,942	149
1966-67--	37,683	2,098,919	12,307	468	25,439	825,127	11,607	432	10,818,954	7,756	292	4,551	176	3,851	140
1967-68--	36,869	2,131,929	12,397	471	25,143	847,485	11,847	441	10,144,086	8,035	292	4,362	179	3,812	149
1968-69--	35,617	2,138,953	12,553	476	24,359	842,330	11,932	444	9,588,217	8,319	311	4,234	165	3,613	133
1969-70--	34,308	2,122,011	12,750	483	23,281	839,343	12,185	453	9,101,646	8,701	315	4,049	168	3,484	138
1970-71--	33,996	2,218,402	13,000	489	22,581	836,751	12,413	460	8,853,847	8,848	320	4,152	169	3,565	140
1971-72--	33,197	2,244,685	13,226	496	21,345	805,555	12,544	466	8,725,760	9,135	332	4,091	164	3,409	134
1972-73--	33,578	2,359,611	13,287	499	20,895	806,270	12,488	468	8,456,119	9,155	332	4,132	167	3,333	136
1973-74--	33,146	2,416,669	13,163	493	19,738	783,195	12,353	463	8,097,136	9,047	328	4,116	165	3,306	135
1974-75--	32,222	2,432,961	13,421	505	18,112	749,807	12,503	475	8,037,232	9,146	332	4,275	173	3,357	143
1975-76--	32,232	2,438,365	13,632	511	20,010	945,101	13,104	497	7,703,534	9,248	336	4,384	175	3,856	161
1976-77--	33,755	2,581,164	14,435	539	21,000	1,006,359	13,539	509	7,443,477	9,452	342	4,983	197	4,087	167
1977-78--	34,971	2,704,064	14,631	542	22,768	1,159,776	13,771	516	7,075,160	9,592	341	5,039	201	4,179	175

1/ THE FIRST SUMMARY OF NONOFFICIAL HERD AVERAGES WAS MADE FOR 1962-63.

2/ MULTIPLE YEARS GIVEN TO MATCH NCDHIP TESTING YEAR OF MAY 1 - APR. 30.

3/ DERIVED FROM NATIONAL COW POPULATION AND PRODUCTION FIGURES, EXCLUDING HEIFERS NOT FRESH. FOR 1960 THROUGH 1964, FROM "AGRICULTURAL STATISTICS," 1971, P. 381; FOR 1965 THROUGH 1969, FROM STATISTICAL BULLETIN 509, STATISTICAL RESEARCH SERVICE; FOR 1970 THROUGH 1974, FROM STATISTICAL BULLETINS 589 AND 591, ECONOMICS, STATISTICS, AND COOPERATIVES SERVICE (ESCS); FOR 1975 THROUGH 1977, FROM "MILK PRODUCTION, DISPOSITION, INCOME 1975-1977," ESCS, USDA; FOR 1978, FROM "MILK PRODUCTION, DISPOSITION, INCOME 1976-1978," ESCS, USDA.

4/ FOR 1974-75 THROUGH 1977-78, DATA ARE PRELIMINARY.

5/ FOR 1960-61 AND 1961-62, MILK PRODUCTION FOR ALL OTHER COWS WAS CALCULATED AS IN THE FOLLOWING EXAMPLE: FOR 1960-61, NATIONAL MILK PRODUCTION FOR 1960-61 WAS AVERAGED, OFFICIAL MILK PRODUCTION FOR 1960-61 WAS SUBTRACTED, AND THAT FIGURE WAS DIVIDED BY AVERAGE COW-YEARS CALCULATED AS EXPLAINED IN FOOTNOTE 6 TO GET AVERAGE MILK PRODUCTION FOR ALL OTHER COWS. FAT PRODUCTION FOR ALL OTHER COWS WAS CALCULATED IN THE SAME MANNER.

FOR 1962-63 THROUGH 1968-69, PRODUCTION FOR ALL OTHER COWS WAS CALCULATED AS EXPLAINED ABOVE, EXCEPT NONOFFICIAL COW-YEARS AND PRODUCTION TOTALS WERE ALSO SUBTRACTED FROM NATIONAL VALUES.

FOR 1969-70 THROUGH 1974-75, PRODUCTION FOR ALL OTHER COWS WAS CALCULATED AS IN THE FOLLOWING EXAMPLE: FOR 1969-70, OFFICIAL AND OWNER-SAMPLER MILK PRODUCTION WAS SUBTRACTED FROM SUM OF MAY 1969 THROUGH APR. 1970 NATIONAL MILK PRODUCTION, AND THAT FIGURE WAS DIVIDED BY VALUES FOR ALL OTHER COWS TO GET AVERAGE MILK PRODUCTION FOR ALL OTHER COWS. FAT FOR ALL OTHER COWS WAS CALCULATED BY SUBTRACTING OFFICIAL AND OWNER-SAMPLER FAT VALUES FROM AVERAGE FAT NATIONALLY FOR THE 2 STATED YEARS. BEGINNING WITH 1975-76, VALUES FOR COWS ON THE ALTERNATE AM-PM, BIMONTHLY, COMMERCIAL, O-S/AM-PM, AND TRIMONTHLY PLANS WERE SUBTRACTED FROM NATIONAL VALUES ALSO.

6/ FOR 1960-61 THROUGH 1968-69, COW-YEARS WERE CALCULATED AS FOLLOWS: 1960 PLUS 1961 COW-YEARS NATIONALLY WERE DIVIDED BY 2 MINUS OFFICIAL AND OWNER-SAMPLER COW-YEARS, JAN. 1, 1961. FROM 1969-70 THROUGH 1977-78, COW-YEARS WERE CALCULATED BY SUBTRACTING TESTING COW-YEARS' JAN. 1 ENROLLMENT OF TESTED COWS FROM SAME JAN. 1 COUNT OF COW-YEARS NATIONALLY.

TABLE 18.—PRODUCTION AND VALUE OF PRODUCT FOR ALL NATIONAL MILK COWS, 1940-78 1/ 2/ 3/

YEAR	MILK COWS 4/ JAN. 1	AVG. FOR YR	DEC. AVG.	PRODUCTION PER COW MILK	FAT	FAT	TOTAL MILK PRODUCED	TOTAL FAT PRODUCED	TOTAL FARM VALUE OF MILK PRODUCED
	THOUSANDS	THOUSANDS	THOUSANDS	LB	PCT	LB	MIL LB	MIL LB	1,000 DOL
1940---	---	23,671	---	4,622	3.97	183	109,412	4,343	1,930,935
1941---	---	24,288	---	4,738	3.97	188	115,088	4,571	2,364,931
1942---	---	25,027	---	4,736	3.97	188	118,533	4,704	2,867,340
1943---	---	25,451	---	4,598	3.97	183	117,017	4,651	3,464,864
1944---	---	25,597	---	4,572	3.98	182	117,023	4,657	3,567,852
1945---	---	25,033	---	4,787	3.98	190	119,828	4,764	3,673,034
1946---	---	24,089	---	4,886	3.97	194	117,697	4,677	4,512,653
1947---	---	23,329	---	5,007	3.97	199	116,814	4,639	4,866,495
1948---	---	22,336	---	5,044	3.97	200	112,671	4,478	5,295,194
1949---	---	22,024	---	5,272	3.96	209	116,103	4,595	4,488,255
1950---	---	21,944	---	5,314	3.96	210	116,602	4,618	4,431,995
1951---	---	21,505	---	5,333	3.93	210	114,681	4,509	5,108,110
1952---	---	21,338	---	5,374	3.90	210	114,671	4,476	5,425,543
1953---	---	21,691	---	5,542	3.87	215	120,221	4,655	5,101,819
1954---	---	21,581	---	5,657	3.86	219	122,094	4,717	4,757,279
1955---	---	21,044	---	5,842	3.84	225	122,945	4,726	4,834,842
1956---	---	20,501	---	6,090	3.82	233	124,860	4,773	5,075,318
1957---	---	19,774	---	6,303	3.81	240	124,628	4,744	5,166,860
1958---	---	18,711	---	6,585	3.78	249	123,220	4,658	5,037,729
1959---	---	17,901	---	6,815	3.76	256	121,989	4,588	5,037,223
1960---	---	17,515	---	7,029	3.76	264	123,109	4,628	5,158,116
1961---	---	17,243	---	7,290	3.74	273	125,707	4,715	5,296,024
1962---	---	16,842	---	7,496	3.74	280	126,251	4,718	5,182,148
1963---	---	16,260	---	7,700	3.71	286	125,202	4,649	5,159,474
1964---	---	15,677	---	8,099	3.70	300	126,967	4,699	5,304,899
1965---	---	14,953	14,526	8,305	3.70	307	124,180	4,592	5,296,774
1966---	---	14,071	13,756	8,522	3.69	314	119,912	4,426	5,801,039
1967---	---	13,415	13,139	8,851	3.69	327	118,732	4,377	6,005,639
1968---	---	12,832	12,571	9,135	3.67	335	117,225	4,305	6,206,150
1969---	---	12,307	12,113	9,434	3.67	346	116,108	4,264	6,434,834
1970---	12,603	12,000	11,916	9,751	3.66	357	117,007	4,284	6,757,294
1971---	11,909	11,839	11,782	10,015	3.66	367	118,566	4,344	7,034,801
1972---	11,776	11,700	11,630	10,259	3.67	377	120,025	4,410	7,361,435
1973---	11,622	11,413	11,304	10,119	3.66	370	115,491	4,225	8,331,450
1974---	11,297	11,230	11,215	10,293	3.66	377	115,586	4,238	9,723,186
1975---	11,220	11,143	11,086	10,350	3.67	380	115,334	4,238	10,192,739
1976---	11,087	11,055	11,035	10,879	3.66	399	120,269	4,406	11,714,591
1977---	11,031	10,974	10,939	11,181	3.65	409	122,698	4,483	12,027,741
1978---	10,939	10,848	10,853	11,240	3.67	412	121,928	4,470	13,004,082

1/ DASHES INDICATE DATA NOT COLLECTED OR USED BEFORE FIRST APPEARANCE IN TABLE.

2/ DATA THROUGH 1959 OBTAINED FROM STATISTICAL BULLETIN 303, ECONOMIC RESEARCH, 1962; FOR 1960 THROUGH 1964, FROM "AGRICULTURAL STATISTICS," 1971, P. 381; FOR 1965 THROUGH 1969, FROM STATISTICAL BULLETIN 509, STATISTICAL RESEARCH SERVICE; FOR 1970 THROUGH 1974, FROM STATISTICAL BULLETINS 589 AND 591, ECONOMICS, STATISTICS, AND COOPERATIVES SERVICE (ESCS); FOR 1975 THROUGH 1977, FROM "MILK PRODUCTION, DISPOSITION, INCOME 1975-1977," ESCS, USDA; FOR 1978, FROM "MILK PRODUCTION, DISPOSITION, INCOME 1976-1978," ESCS, USDA.

3/ FOR 1975 THROUGH 1978, DATA ARE PRELIMINARY EXCEPT NUMBER OF MILK COWS FOR JAN. 1, 1975.

4/ EXCLUDING HEIFERS NOT YET FRESH.

TABLE 19.--STATE AND NATIONAL DOE-YEAR TOTALS AND AVERAGES FOR OFFICIAL HERD RECORDS, MAY 1, 1978 - APRIL 30, 1979 1/

STATE 2/	HERDS	DOE-YEARS	DOES PER HERD	DAYS IN MILK	MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	LB	PCT	LB
ALABAMA	2	9.0	4.5	87	1,807	3.60	65
ARIZONA	55	357.3	6.5	77	1,786	3.58	64
ARKANSAS	11	150.1	13.6	72	1,384	3.25	45
CALIFORNIA	283	3,769.6	13.3	73	1,655	3.75	62
COLORADO	27	176.3	6.5	79	1,956	3.73	73
CONNECTICUT	8	128.1	16.0	79	1,735	3.75	65
FLORIDA	6	52.8	8.8	76	1,419	3.67	52
GEORGIA	11	49.6	4.5	73	1,421	4.43	63
IDAHO	16	134.2	8.4	74	1,612	3.85	62
ILLINOIS	10	118.2	11.8	74	1,448	3.66	53
INDIANA	12	104.9	8.7	70	1,254	3.83	48
IOWA	20	319.8	16.0	74	1,698	3.36	57
KANSAS	8	58.4	7.3	71	1,462	3.49	51
KENTUCKY	1	2.0	2.0	71	1,552	4.45	69
LOUISIANA	1	9.8	9.8	86	3,040	2.93	89
MAINE	25	272.7	10.9	78	1,513	3.77	57
MARYLAND	13	264.9	20.4	71	1,401	3.57	50
MASSACHUSETTS	10	106.2	10.6	73	1,502	3.53	53
MINNESOTA	12	183.3	15.3	75	1,597	3.63	58
MISSOURI	24	322.8	13.5	68	1,361	3.67	50
MONTANA	13	130.6	10.0	78	1,810	4.03	73
NEBRASKA	1	3.8	3.8	80	1,296	3.01	39
NEVADA	16	118.6	7.4	76	1,877	4.16	78
NEW HAMPSHIRE	7	78.1	11.2	81	1,933	3.62	70
NEW JERSEY	15	224.2	14.9	80	1,723	3.60	62
NEW MEXICO	11	94.5	8.6	73	1,764	3.35	59
NEW YORK	33	318.4	9.6	78	1,676	3.94	66
NORTH CAROLINA	9	90.5	10.1	79	1,673	3.89	65
OHIO	31	195.0	6.3	77	1,577	3.68	58
OKLAHOMA	20	226.0	11.3	65	1,393	3.88	54
OREGON	128	1,086.1	8.5	70	1,588	3.90	62
PENNSYLVANIA	14	252.6	18.0	76	1,559	3.66	57
RHODE ISLAND	6	76.4	12.7	79	1,522	3.55	54
SOUTH CAROLINA	2	32.2	16.1	67	1,024	3.71	38
TENNESSEE	5	52.6	10.5	77	1,559	4.11	64
TEXAS	15	202.2	13.5	76	1,419	4.37	62
VERMONT	4	56.5	14.1	84	1,749	3.60	63
VIRGINIA	13	115.4	8.9	72	1,589	3.78	60
WASHINGTON	58	575.9	9.9	76	1,641	3.78	62
WEST VIRGINIA	2	16.1	8.1	66	1,199	3.09	37
UNITED STATES	958	10,535.7	11.0	74	1,616	3.71	60

1/ INCLUDES HERDS WITH 40 PERCENT OR MORE DAYS IN MILK AND 500 LB OR MORE OF MILK.
2/ HERD AVERAGES NOT PROVIDED BY MICHIGAN AND WISCONSIN PROCESSING CENTERS.

TABLE 20.--NATIONAL DISTRIBUTIONS OF GOAT HERDS FOR NUMBER OF DOE-YEARS PER HERD, PERCENT DAYS IN MILK, MILK POUNDS, AND FAT POUNDS, MAY 1, 1978 - APRIL 30, 1979 1/

NUMBER OF DOE-YEARS PER HERD

GROUP	HERDS	HERDS
	NUMBER	PCT
LESS THAN 5.0---	261	27.2
5.0 - 9.9-----	372	38.8
10.0 - 14.9-----	154	16.1
15.0 - 19.9-----	77	8.0
20.0 - 24.9-----	37	3.9
25.0 - 29.9-----	22	2.3
30.0 - 34.9-----	7	.7
35.0 - 39.9-----	5	.5
40.0 - 44.9-----	5	.5
45.0 - 49.9-----	2	.2
MORE THAN 49.9--	16	1.8
TOTAL-----------	958	100.0

PERCENT DAYS IN MILK

GROUP	HERDS	HERDS
	NUMBER	PCT
40 - 49----	27	2.8
50 - 59----	77	8.0
60 - 69----	159	16.6
70 - 79----	346	36.1
80 - 89----	302	31.5
90 - 100----	47	5.0
TOTAL-------	958	100.0

MILK POUNDS

GROUP	HERDS	HERDS
	NUMBER	PCT
500 - 999---	58	6.0
1,000 - 1,499---	267	27.9
1,500 - 1,999---	401	41.9
2,000 - 2,499---	174	18.2
2,500 - 2,999---	50	5.2
MORE THAN 2,999-	8	.8
TOTAL-----------	958	100.0

FAT POUNDS

GROUP	HERDS	HERDS
	NUMBER	PCT
LESS THAN 25---	6	0.6
25 - 49----	194	20.3
50 - 74----	493	51.5
75 - 99----	230	24.0
100 - 124----	31	3.2
MORE THAN 124--	4	.4
TOTAL----------	958	100.0

1/ DISTRIBUTIONS INCLUDE HERDS WITH 40 PERCENT OR MORE DAYS IN MILK AND 500 LB OR MORE OF MILK.

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Dairy Herd Improvement Letter

Vol. 56, No. 3

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Dairy Herd Improvement Letter

PREDICTED DIFFERENCES CAN BE DIRECTLY COMPARED ACROSS TIME

By Rex L. Powell [1]

The U.S. Department of Agriculture provides estimates of genetic transmitting ability for dairy sires in the form of Predicted Differences (PD's). The base or zero point for PD's is the merit of the average sire for the cows included in the first Modified Contemporary Comparison (MCC) Sire Summary, Fall 1974. Calving dates ranged from 1960 to 1974 and averaged about 1968. A zero PD bull then is an average sire for cows calving about 1968, depending on breed. The exact date is unimportant, but the fact that all MCC sire summaries to date have been to the same base is important. PD's computed with that base are correctly referred to as PD74. However, in the absence of another base, the 74 is often omitted.

The procedure for computing PD74 accounts for genetic differences both within and across time. The formula can be written in a number of ways, but for purposes of this discussion,

$$PD74 = R(D - MCA + SMC) + (1-R)GA$$

where: R is the Repeatability of the progeny test,
D is the weighted average production for daughters,
MCA is the weighted average production for modified contemporaries,
SMC is the weighted average sire merit for modified contemporaries, and
GA is the genetic group average or the average merit of bulls with a similar pedigree.

A bull is expected to have the same PD74, regardless of when he is evaluated. For a later evaluation, D-MCA would be expected to be smaller because the modified contemporaries are sired by genetically superior bulls compared to earlier contemporaries, but this should be offset by the increase in SMC. Thus, PD's for a given bull are expected to be the same whenever he is summarized. Also, PD's for different bulls are directly comparable even though the bulls were summarized at different times. Since differences in SMC between sires are accounted for, sires are fairly compared even though they may have been evaluated in herds that have used sires of greatly different quality. Accounting for competition is a feature of PD74 and necessary to evaluate all bulls relative to the common base.

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Expected genetic differences among the sires themselves are also considered by PD74. These differences are determined from a bull's pedigree through the use of GA. GA has, in part, accounted for a genetic trend in sires evaluated because younger bulls tend to have better pedigrees than older bulls. However, SMC is an essential element in accounting for changes in genetic merit of contemporaries across time.

Key features of PD74 are the consideration of competition and the expected merit of the sire as suggested by the pedigree. These features are necessary to capitalize on the benefits of the common genetic base. Under PD74, sires can be compared directly and fairly regardless of the date of summary, level of competition, or ancestry.

HOW FAST SIRES ARE IMPROVING, BY BREED

By Rex L. Powell [1]

The average Predicted Difference (PD) for sires of cows calving each year should be better than the previous year, if progress is being made. All USDA-DHIA PD's are relative to the base established in 1974 and are correctly referred to as PD74. However, in the absence of another base, the 74 is often omitted. Measures of the effectiveness of the overall sire selection efforts of the industry can be obtained by monitoring annual changes in average PD74. The results should also provide guidance as to how much sire selection standards need to be raised annually to keep pace with industry progress.

The average PD's were studied for sires of first lactation cows on Official DHI test calving from 1973 through 1978. Only first lactations were used in order to provide figures more reflective of recent decisions. The use of later lactations would dilute the higher recent levels of sire merit. Table 1 gives the average PD's for 1973 and 1978 and the annual change for intervening years for milk, fat, and dollars. PD dollars (PD$) is a combination of PD milk (PDM) and PD fat (PDF) according to the national average milk price in 1979. Thus, PD$ = ($0.0653 x PDM) + ($1.42 x PDF). All PD$ were computed by this formula. Changes from year to year more clearly show the changes (progress) taking place than would the presentation of annual averages.

The annual changes are not uniform across or even within breeds but are predominately positive. Some fluctuations are due to limited numbers of cows and sires in some breeds. The fluctuations are smaller in Holsteins, probably because of the larger number of cows. The sires of later lactation cows, representing a number of years of first calvings, would smooth out the year-to-year variation from sires of first lactation cows. In these data, first lactations were 25 to 30 percent of all lactations.

The average sire is genetically better each year. The table gives the average annual changes in PDM, PDF, and PD$. Each year dairy farmers need to increase the average PD's of sires used by those amounts, just to keep pace with national progress.

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Table 1.--Averages in 1973 and 1978 and annual changes for Predicted Difference milk, fat, and dollars of sires of first lactation cows

Breed	1973 average	1978 average	Change from previous year for					Average annual change
			1974	1975	1976	1977	1978	
			Milk (lb)					
Ayrshire	163	343	-14	+69	+69	+35	+21	+36
Brown Swiss	297	501	0	+36	+68	+33	+67	+41
Guernsey	120	425	+30	+49	+51	+95	+80	+61
Holstein	177	552	+87	+78	+58	+55	+97	+75
Jersey	282	633	+80	+95	+69	+35	+72	+70
Milking Shorthorn	260	461	+96	+120	-4	-14	+3	+40
			Fat (lb)					
Ayrshire	5.8	11.0	-0.8	+1.9	+1.7	+1.5	+0.9	+1.0
Brown Swiss	8.4	17.8	+.5	+1.0	+3.8	+1.1	+3.0	+1.9
Guernsey	4.8	15.6	+2.1	+2.1	+1.3	+2.7	+2.6	+2.2
Holstein	2.5	11.8	+2.7	+1.7	+.7	+1.3	+2.9	+1.9
Jersey	7.8	20.8	+2.9	+3.9	+1.7	+1.1	+3.4	+2.6
Milking Shorthorn	10.6	21.4	+4.0	+4.7	+.3	+1.0	.8	+2.2
			Dollars					
Ayrshire	19	38	-2	+7	+7	+4	+3	+4
Brown Swiss	31	58	+1	+4	+10	+3	+9	+5
Guernsey	15	50	+5	+6	+5	+10	+9	+7
Holstein	15	53	+10	+7	+5	+5	+11	+8
Jersey	29	71	+10	+12	+7	+3	+10	+8
Milking Shorthorn	32	60	+12	+14	0	+1	+1	+6

HAVE YOU RAISED THE CREDENTIALS OF YOUR SERVICE SIRES?

By Rex L. Powell and H. Duane Norman [1]

A dairy farmer has many factors to consider when choosing a service sire for his cows and heifers. Availability and price of semen may limit his choices, and interest in type characteristics will affect his decision, but the major factor should be the level of sire merit for improving production. The measure of a sire's genetic transmitting ability for production is the USDA Predicted Difference (PD) for milk and fat. Each dairy farmer should be aware of where the service sires he uses will place his herd relative to all herds in the country. Then he can decide if that position is satisfactory or if he would like to make more rapid genetic progress.

We will predict the relationship of service sire PD and resulting herd ranking by examining recent data on sires of first lactation cows. Average PD's of sires of first lactation cows calving in 1978 are in table 1. The average month of calving was July. With a 9-month gestation and an average age at first calving of 27 months, the average conception date would be 3 years before the calving date. Thus, the averages in table 1 represent the service sires used in 1975, averaging about July 1975. If we want to predict the average PD of a service sire in July 1980, we must apply 5 years of genetic progress. Average annual increases in PD's are in table 2. We assume that the increases from 1970 through 1975 will continue through 1980. As an example, the average annual increase for PD milk of Holstein sires was 75 pounds. Then the expected service sire PD milk in July 1980 is 552 + (5 x 75) = +927. Coincidentally, this is fairly close to the average for Holstein sires in active artificial insemination (AI) service.

Table 3 combines the distribution of herd average PD's for sires of first lactation cows in 1978 (service sires in 1975) and the expected increases over the 5-year period. PD dollars is a combination of PD's for milk and fat according to average milk prices from the previous year. PD dollars equals PD milk times $0.0653 plus PD fat times $1.42 according to the national average milk price in 1979. This table can be read two ways. Given a level of PD, one can see where that would place a herd relative to other herds. Also, given a desired ranking for a herd, one can select the minimum PD's expected to achieve that rank.

Selection of sires on PD dollars should result in the greatest increase in income. Dairy farmers should select the highest PD dollar bulls rather than setting some minimum acceptable level if maximum progress is to be made.

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If minimums are used, table 3 can be a guide to establishing minimums. Such standards need to be updated frequently. This table will become outdated and misleading if values are not revised annually.

Two national dairy magazines and various breed and extension publications rank active AI bulls on PD dollars or on an index that also considers type. Selecting a number of bulls from near the top of such lists is recommended to insure a high average PD and to benefit from increased production.

Table 1.--Average Predicted Differences for sires of first lactation cows calving in 1978

	Predicted Difference	
Breed	Milk	Fat
	Lb	Lb
Ayrshire	343	11
Brown Swiss	501	18
Guernsey	425	16
Holstein	552	12
Jersey	633	21
Milking Shorthorn	461	21

Table 2.--Average annual increases in Predicted Differences of service sires, 1970-75 [1]

	Annual increase	
Breed	PD milk	PD fat
	Lb	Lb
Ayrshire	36	1.0
Brown Swiss	41	1.9
Guernsey	61	2.2
Holstein	75	1.9
Jersey	70	2.6
Milking Shorthorn	40	2.2

[1] Data are PD's of sires of first lactation cows calving in 1973 through 1978. A 3-year delay is assumed between conception and first calving by a resulting daughter.

Table 3.--Expected minimum average Predicted Differences for milk, fat, and dollars for service sires in July 1980 for herds to be in various top percentages of all herds

Top percentage for herds	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Milking Shorthorn
2--------------milk lb--	1,079	1,381	1,367	1,530	1,456	1,179
fat lb--	31	56	53	44	55	57
dollars--	110	166	154	159	170	159
5--------------milk lb--	923	1,229	1,136	1,404	1,361	1,071
fat lb--	29	51	46	40	52	54
dollars--	98	154	144	146	164	147
10-------------milk lb--	817	1,124	1,040	1,285	1,282	931
fat lb--	27	47	42	36	47	49
dollars--	86	141	132	134	153	135
20-------------milk lb--	703	972	930	1,150	1,177	820
fat lb--	23	41	36	31	43	40
dollars--	75	123	114	120	141	114
30-------------milk lb--	615	856	828	1,052	1,095	733
fat lb--	21	35	32	27	40	36
dollars--	67	108	103	110	131	101
40-------------milk lb--	550	763	748	967	1,026	663
fat lb--	18	31	29	24	36	32
dollars--	59	98	94	100	122	96
50-------------milk lb--	467	672	681	884	960	602
fat lb--	16	28	26	21	33	30
dollars--	51	86	86	91	114	85
70-------------milk lb--	319	483	538	705	783	458
fat lb--	12	20	20	16	28	26
dollars--	43	63	67	72	95	69
90-------------milk lb--	48	165	337	405	478	221
fat lb--	4	10	14	8	15	14
dollars--	10	32	45	43	59	39

INCLUDING PEDIGREE INFORMATION IN PREDICTED DIFFERENCE

By Rex L. Powell and Bennet G. Cassell [1]

Only pedigree information is available as an indication of potential for transmitting production when buying a bull calf. Production information on daughters of the bull becomes available when he is 5 or 6 years of age. The two estimates of the bull's merit - one from the pedigree and one from the daughters - are combined by USDA into a single estimate called Predicted Difference (PD). The purpose of a PD is to predict the future daughter merit for a bull. Adding pedigree information to past daughter performance aids the prediction.

PD is calculated as $R(\overline{MCD}) + (1-R)GA$, where R is the Repeatability of the progeny test expressed as a decimal, $\overline{MCD}$ is a measure of average daughter performance, and GA is the genetic group average. Pedigree information affects PD through GA. Let's examine the PD formula and see how R affects the impact of GA on PD. The weight to GA (i.e., 1-R) decreases as R increases. However, pedigree information for a bull is never discarded. It merely becomes less and less important relative to an increasing number of daughter production records. The PD formula can also be written as $GA + R(\overline{MCD}-GA)$. $R = 0$ and PD is GA for a bull with no daughters. PD can move away from GA as daughter information becomes available. Daughter performance predominates in determining PD when R is very high.

Pedigree Index (PI) is one-half the sire's PD plus one-fourth the maternal grandsire's PD. Bulls are assigned to categories according to the amount of pedigree information available (sire and maternal grandsire, sire only, maternal grandsire only). The first two categories are further separated for Holstein bulls initially sampled through artificial insemination (AI) or non-AI. Bulls are assigned to genetic groups within categories by their PI's for milk. For example, all AI-sampled bulls with PD's on both ancestors are ranked from high to low on PI milk. Then bulls with similar PI's are assigned to the same genetic group. PI is forgotten after genetic groups are formed. GA is determined by the average daughter performance ($\overline{MCD}$) for all bulls in the group. Bulls without a PI are all placed in one group.

Two points from the previous discussion are especially important. First, the weight to GA depends on the amount of daughter information (R). Second, PI is used only for placing a bull in a group; GA is determined by daughter performance of bulls in that group.

The value of (1-R)GA for milk was added to Sire Summary lists beginning in the spring 1977. Although PD's should be the major columns of interest, the (1-R)GA indicates how important the group information was in arriving at the PD milk. The corresponding value for fat is not provided because of space limitations. If a bull has a PD milk of +1,226 and (1-R)GA is +112, we know that 112 pounds of the PD came from using pedigree information, and the PD from daughters alone would have been +1,114. The GA is about 112/(1-R) or +622, because R = 82 percent. The $\overline{\text{MCD}}$ is about +1,114/0.82 or +1,359. Providing (1-R)GA has been educational because many people would otherwise overestimate the effect of the pedigree grouping.

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Research has shown a high relationship between GA and $\overline{\text{MCD}}$. Use of pedigree information through GA is like having a few extra daughters. Just as a few daughters may not reflect the performance of all daughters, so GA may not always give the same picture as all daughters. But both sources of information contribute to a more accurate prediction of future daughters.

The incorporation of GA into the PD formula has been especially valuable for bulls with low Repeatabilities. The value of the pedigree information is equal to about six to eight daughters in as many herds. Thus, the use of GA can be more valuable in predicting future daughter performance than can a hundred daughters in a single herd. The (1-R)GA is only supplemental information. The PD is what should be emphasized because (1-R)GA is already included in the PD.

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Dairy Herd Improvement Letter

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NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

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- Averages of Predicted Differences by Summary Date, Breed, and Bull Status
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Dairy Herd Improvement Letter

STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES BY BREED FOR COWS ON OFFICIAL TEST, CALVING IN 1978

By Rex L. Powell[1]

Dairy records processing centers provide lactation records to USDA for research that includes genetic evaluations. These evaluations only use records from cows on official test. Nearly half of the official records are not used because of missing sire identification or failure to pass USDA edits.[2] [3] The number and average standardized production of lactations initiated in 1978 that contributed to genetic evaluations are reported by State in table 1 for Ayrshire, Guernsey, and Holstein cows and in table 2 for Jersey, Brown Swiss, and Milking Shorthorn cows. Records were standardized for age and month of calving[4] and times milked per day.[5] Incomplete records were projected to 305 days.[6] Thus, the averages presented are on a 305-day, 2X, mature-equivalent basis. This is the first report of lactation averages with incomplete records projected by the factors of Wiggans and Powell.[6] Fat percentages were computed from the average standardized milk and fat yields.

The number of records increased by 3 percent over 1977 numbers primarily because of a 3 percent increase for Holstein records. There were also increases for Jersey (3 percent) and Milking Shorthorn (6 percent) records, but Brown Swiss numbers remained about the same. The number of Ayrshire records decreased by 2 percent from 1977 but was greater than for each of the preceding 4 years. The number of Guernsey records declined by 29 percent from 1971 to 1977.[7] That trend continued in 1978, with a decline of 3,593 records (6 percent).

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R. Errors, reasons for termination, and types of test for 305-day lactation records received for the Summer 1978 through Winter 1980 Sire Summaries. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(6), pp. 7-13. 1980.

[3] U.S. Department of Agriculture. Editing of lactation records used in USDA-DHIA genetic evaluations of sires and cows. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS-44-222, 46(6), 32 pp. 1970.

[4] Norman, H. D., Miller, P. D., McDaniel, B. T., and others. USDA-DHIA factors for standardizing 305-day lactation records for age and month of calving. U.S. Dept. Agr. ARS-NE-40, 91 pp. 1974.

[5] U.S. Department of Agriculture. Reducing records to a twice-a-day milking basis. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 48(1), pp. 3-8. 1972.

[6] Wiggans, G. R., and Powell, R. L. Projection factors for milk and fat lactation records. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(1), 15 pp. 1980.

Average milk production (pounds) increased modestly for Ayrshires (+144), Guernseys (+91), Holsteins (+168), and Jerseys (+124) but decreased slightly for Brown Swiss (-12) and Milking Shorthorns (-33). Average fat yield was the same in 1978 as in 1977 for Milking Shorthorns but increased for all other breeds. Holsteins increased the most, 8 pounds. All breeds increased in fat percentage following a drop of about 0.03 percent in 1977.

A comparison of national averages for 1971 through 1977 has been published.[7] Changes in averages and numbers of records for particular State and breed combinations may be studied by comparing tables 1 and 2 with tables in the report[7] for 1977 and in corresponding publications for earlier years.

Cows of the Red and White breed are not included in the tables because of small numbers. Nationally, the 687 Red and White cows averaged 15,193 pounds of milk, 3.62 percent fat, and 550 pounds of fat. The averages for 251 cows in 1977 were 14,299 pounds of milk, 3.60 percent fat, and 513 pounds of fat.

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[7] Powell, R. L. State and national standardized lactation averages by breed for cows on official test, calving in 1977. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(2), pp. 1-6. 1980.

Table 1.--State and national standardized lactation averages for Ayrshire, Guernsey, and Holstein cows on official test, calving in 1978[1]

State	Ayrshire				Guernsey				Holstein			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds
Alabama	70	11,919	3.53	421	160	10,911	4.25	463	4,965	15,689	3.49	547
Alaska	---	---	---	---	---	---	---	---	58	14,377	3.69	530
Arizona	---	---	---	---	1,170	12,156	4.45	541	5,926	17,341	3.48	604
Arkansas	11	10,106	3.98	402	200	10,714	4.41	473	2,669	15,564	3.37	525
California	206	14,311	3.97	569	2,433	12,333	4.50	555	120,940	18,246	3.59	654
Colorado	33	12,035	3.87	466	208	10,955	4.64	508	8,733	16,725	3.47	580
Connecticut	508	12,447	3.99	496	746	11,218	4.65	521	13,123	16,523	3.68	608
Delaware	212	9,376	4.22	396	11	12,545	4.90	615	2,428	16,865	3.60	607
Florida	156	12,005	3.53	424	573	9,218	4.13	381	2,536	15,628	3.20	500
Georgia	112	12,271	3.77	462	661	11,413	4.58	523	8,481	15,540	3.55	552
Hawaii	---	---	---	---	1	9,830	3.36	330	1,270	16,140	3.26	526
Idaho	73	11,965	3.74	447	415	10,621	4.51	479	9,509	16,653	3.53	588
Illinois	492	12,303	3.86	475	1,443	10,271	4.63	476	29,960	15,901	3.67	583
Indiana	367	12,608	3.90	491	3,206	11,261	4.73	533	22,763	16,298	3.69	602
Iowa	1,396	11,684	3.85	450	1,921	10,371	4.62	479	29,813	15,208	3.60	548
Kansas	493	11,206	3.85	431	571	10,703	4.60	492	21,764	15,541	3.52	547
Kentucky	195	10,767	3.73	402	510	9,735	4.53	441	8,862	15,601	3.55	553
Louisiana	145	11,177	3.78	423	1,268	9,870	4.31	425	7,088	14,538	3.34	485
Maine	456	12,141	3.84	466	277	10,794	4.58	494	14,235	16,301	3.57	581
Maryland	537	11,199	3.93	440	1,112	10,453	4.72	493	27,016	16,243	3.65	592
Massachusetts	612	11,890	3.97	472	349	11,292	4.56	516	11,264	16,423	3.61	593
Michigan	99	12,369	3.75	464	1,856	11,692	4.67	546	45,268	16,981	3.68	625
Minnesota	980	11,672	3.88	453	3,961	10,443	4.67	488	100,301	15,593	3.65	570
Mississippi	175	11,810	3.65	432	255	11,421	4.20	479	4,497	15,543	3.41	530
Missouri	89	11,864	3.84	455	1,663	10,356	4.54	470	17,008	15,343	3.53	542
Montana	136	13,987	3.78	529	70	12,215	4.81	587	1,385	15,865	3.48	552
Nebraska	100	10,228	4.01	410	472	10,547	4.58	483	10,302	14,938	3.57	533
Nevada	---	---	---	---	---	---	---	---	846	17,301	3.33	576
New Hampshire	568	12,606	3.91	493	134	10,548	4.48	473	7,229	16,394	3.62	594
New Jersey	52	10,847	3.88	421	166	11,016	4.65	512	9,502	16,462	3.69	607
New Mexico	112	13,618	3.72	506	464	12,964	4.39	569	6,445	17,065	3.49	595
New York	3,454	12,621	3.97	501	2,490	11,226	4.63	520	136,022	16,649	3.65	607
North Carolina	255	12,686	3.64	462	667	10,906	4.55	496	24,615	16,683	3.48	580
North Dakota	---	---	---	---	13	8,896	4.52	402	3,016	14,604	3.56	520
Ohio	1,131	12,611	3.80	480	2,811	11,395	4.62	526	42,353	17,001	3.62	615
Oklahoma	305	11,814	3.93	464	448	11,994	4.65	558	6,180	16,293	3.55	578
Oregon	342	12,001	3.96	475	1,058	11,097	4.63	513	11,170	17,021	3.61	615
Pennsylvania	1,411	13,181	3.96	522	4,642	11,242	4.67	525	120,888	16,626	3.70	614
Puerto Rico[2]	---	---	---	---	---	---	---	---	1,719	11,033	2.97	328
Rhode Island	103	12,607	3.84	485	42	8,508	4.66	397	703	16,167	3.55	573
South Carolina	---	---	---	---	1,692	11,619	4.60	534	6,132	16,225	3.56	578
South Dakota	18	12,624	3.97	501	31	10,669	5.14	549	5,162	15,071	3.62	546
Tennessee	107	11,994	3.81	457	639	10,887	4.52	493	11,888	16,462	3.65	601
Texas	14	9,909	3.97	393	310	11,662	4.47	522	13,219	16,550	3.47	574
Utah	8	12,228	3.70	452	1	12,870	3.40	438	9,643	17,337	3.41	591
Vermont	1,408	12,771	3.86	492	498	10,990	4.61	507	27,481	16,090	3.57	575
Virginia	538	12,401	3.67	455	1,877	10,626	4.59	488	44,057	16,148	3.54	572
Washington	374	13,868	4.04	559	2,310	12,048	4.73	570	23,163	17,752	3.53	626
West Virginia	300	11,323	4.18	473	230	9,539	4.71	450	6,756	15,891	3.50	557
Wisconsin	943	12,362	3.91	483	6,587	11,114	4.66	518	130,461	16,480	3.76	619
Wyoming	1	14,660	3.85	564	31	15,338	4.42	677	954	15,518	3.38	524
United States	19,097	12,311	3.90	480	52,653	11,094	4.61	512	1,181,768	16,522	3.62	599

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 2.--State and national standardized lactation averages for Jersey, Brown Swiss, and Milking Shorthorn cows on official test, calving in 1978[1]

State	Jersey				Brown Swiss				Milking Shorthorn			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds
Alabama	2,117	12,021	4.46	536	176	11,577	3.90	451	---	---	---	---
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	1,030	10,882	4.82	524	940	15,051	3.82	575	37	11,979	3.45	413
Arkansas	727	9,867	4.69	463	43	14,298	3.72	531	48	13,820	3.64	502
California	6,180	11,636	5.02	584	623	14,928	4.10	613	158	12,968	3.59	465
Colorado	351	10,864	4.73	514	428	14,428	4.08	588	36	10,469	3.53	370
Connecticut	373	10,315	4.98	514	216	13,734	3.92	539	7	11,320	3.51	398
Delaware	27	10,139	4.33	439	8	16,270	4.17	679	---	---	---	---
Florida	849	10,328	4.26	440	505	11,725	3.61	423	---	---	---	---
Georgia	1,468	10,127	4.88	494	299	13,753	3.90	536	---	---	---	---
Hawaii	---	---	---	---	1	13,000	4.30	559	---	---	---	---
Idaho	1,047	10,386	4.84	503	111	13,934	3.94	548	---	---	---	---
Illinois	945	9,318	4.91	457	1,199	13,003	4.03	525	96	11,615	3.53	410
Indiana	1,522	9,704	4.92	477	790	14,353	4.04	580	48	10,285	3.82	392
Iowa	2,072	9,807	4.75	466	3,065	13,201	4.01	529	384	10,576	3.62	383
Kansas	528	10,065	4.65	468	288	12,388	3.94	488	5	13,008	3.57	464
Kentucky	1,938	10,293	4.79	493	293	11,363	3.82	434	8	13,136	3.36	442
Louisiana	1,865	9,689	4.59	445	136	11,076	3.56	394	---	---	---	---
Maine	1,220	11,759	4.75	559	67	12,010	3.91	470	96	9,710	3.64	354
Maryland	510	8,547	4.87	416	243	12,511	3.99	500	29	10,154	3.70	375
Massachusetts	1,043	10,441	4.94	516	51	13,435	3.80	512	28	10,423	3.76	392
Michigan	1,544	10,397	4.99	519	331	13,796	4.06	560	94	11,880	3.31	394
Minnesota	2,105	9,964	4.89	487	1,348	12,995	4.03	524	539	11,851	3.64	431
Mississippi	1,680	9,931	4.52	449	12	13,210	3.79	495	---	---	---	---
Missouri	1,716	10,032	4.73	474	491	12,386	3.93	487	167	10,805	3.73	403
Montana	11	8,437	4.85	409	29	12,367	4.14	512	---	---	---	---
Nebraska	176	9,175	4.63	425	505	12,567	4.21	529	155	9,652	3.71	358
Nevada	456	12,035	4.74	570	---	---	---	---	---	---	---	---
New Hampshire	1,023	10,916	4.83	527	92	11,970	3.93	470	5	10,116	3.54	352
New Jersey	276	11,292	4.81	542	116	13,970	3.89	543	---	---	---	---
New Mexico	10	11,583	5.19	601	11	13,708	3.91	535	---	---	---	---
New York	4,360	10,442	4.99	521	1,551	13,599	4.03	548	60	11,814	3.57	422
North Carolina	1,830	10,356	4.77	494	241	13,036	3.94	514	1	11,120	4.33	481
North Dakota	44	8,201	5.06	415	184	13,455	4.03	541	9	9,764	3.56	347
Ohio	4,427	10,655	4.95	527	1,455	14,690	4.09	601	135	11,851	3.84	455
Oklahoma	528	9,832	5.01	493	239	11,737	4.01	471	151	12,709	3.57	454
Oregon	3,498	10,911	5.03	549	722	13,439	4.07	547	17	10,312	3.66	383
Pennsylvania	4,055	10,417	4.90	510	807	13,549	4.03	546	83	10,662	3.67	391
Puerto Rico[2]	---	---	---	---	3	10,257	3.07	316	---	---	---	---
Rhode Island	2	9,200	4.98	459	4	11,562	3.76	436	---	---	---	---
South Carolina	3,804	11,438	4.84	554	50	16,997	3.75	637	---	---	---	---
South Dakota	119	9,622	5.20	500	283	12,287	4.11	505	75	9,521	3.61	344
Tennessee	4,005	10,821	4.84	524	485	13,232	4.04	535	---	---	---	---
Texas	3,640	10,774	4.58	493	1,317	14,088	3.87	546	31	10,429	3.46	361
Utah	586	11,202	4.82	540	102	13,328	3.95	527	1	17,210	4.17	718
Vermont	5,290	10,773	4.80	515	134	14,300	3.82	547	36	11,623	3.52	409
Virginia	757	10,766	4.89	526	158	13,144	3.85	506	9	11,253	3.58	402
Washington	3,484	11,566	5.05	584	301	14,001	3.94	551	42	14,866	3.49	519
West Virginia	342	11,258	4.81	542	1	15,980	3.52	562	---	---	---	---
Wisconsin	2,763	10,116	4.88	493	3,016	13,579	4.05	550	265	11,994	3.64	437
Wyoming	40	10,437	4.40	459	5	11,168	3.77	424	---	---	---	---
United States	78,383	10,670	4.85	517	23,475	13,490	4.00	539	2,855	11,415	3.62	414

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

AVERAGES OF PREDICTED DIFFERENCES BY SUMMARY DATE, BREED, AND BULL STATUS

By Rex L. Powell and George R. Wiggans[1]

Average Predicted Differences (PD's) of bulls by Summary date have been of interest to the dairy industry. Average PD's for milk (PDM's) and dollars (PD$'s) for bulls in active artificial insemination (AI) service have been reported for one USDA-DHIA Sire Summary each year through 1978 (*5*, *6*, *7*). Averages for both Winter and Summer Sire Summaries in 1979 and 1980 were reported recently (*1*). That report also included PD's for fat percentage (PD%'s) and fat yield (PDF's) and categories for non-AI bulls and all bulls. Similar data have been distributed with each active AI list since the Fall 1976 Sire Summary, but there were no published data on all four PD's or for non-AI or all bulls before 1979. The tabular data in this report provide averages for the four PD's and four categories of bulls (all, active AI, inactive AI, and non-AI) for all Summaries computed by the Modified Contemporary Comparison (MCC).

The following points should be considered when comparing average PD's of bulls summarized:

(1) Resummary requirements permit most bulls to be resummarized only when the amount of additional information on daughters meets the minimum requirement (*4*). When stricter requirements are imposed, only bulls with substantial increases in amounts of daughter information are resummarized. These bulls are younger and have higher PD's than bulls summarized under relaxed requirements. The resummary requirements have changed during the period covered in this report.

(2) The definition of an active AI bull has changed. Stricter definitions tend to increase average PD's for active AI bulls. Beginning with the Winter (January) 1979 Sire Summaries, AI organizations were able to add or delete any of their bulls from the active AI list after examining current Summaries.

(3) Comparison of average PD's from a particular Summary exaggerates the difference between non-AI and active AI bulls. Active AI bulls are selected to be on the list, but comparable selection of non-AI bulls is not done. Non-AI bulls tend to be older than active AI bulls and often may not have been available for service for years. The contribution of non-AI sampled bulls is not evident by comparing averages, because the best non-AI bulls move to active AI status and most of the remaining non-AI bulls are used because of the convenience of natural service rather than for genetic improvement. Better comparisons of AI and non-AI bull sampling programs (*3*) and average merit of sires of AI and non-AI daughters (*2*) have been reported.

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(4) Changes in the averages of bulls summarized suggest genetic change; however, changes in these averages are an imprecise measure. The data used in the Summaries are not representative of any specific time and are subject to changes in requirements for resummary (*4*). Also, the averages do not account for differential usage of bulls, which is necessary in estimating genetic trends (*2*).

Averages in tables 1 and 2 are for all, active AI, inactive AI, and non-AI bulls. Previously there were no separate averages for inactive AI bulls, but the averages except for PD% could have been computed from the other averages distributed with the active AI list. Active AI bulls were those designated as active by the controlling organization. Inactive AI bulls had a stud code and had entered the stud at least 3 months prior to the Summary date but were not in active service at the time of the Summary. All other bulls were given non-AI status.

The Fall (October) 1974 Sire Summary's numbers of bulls were higher and averages lower than for other Summaries, because the MCC was used for the first time and all bulls were summarized. Thereafter, bulls not in active AI service have had to meet certain requirements for resummary. The spring (May) 1977 resummary requirements were relaxed in order to update evaluations on additional bulls so that Summaries would continue to be comparable. The number of bulls summarized in that run increased for all breeds and more than doubled for breeds other than Holstein. The resummarization of additional, generally older bulls decreased the average PDM and PDF for all breeds. Number of active AI bulls decreased and their average PDM and PDF increased with the Summer 1978 Sire Summary because of adoption of a more restrictive definition of active status by the National Association of Animal Breeders.

The PD$ values combine PDM and PDF into an economic index according to the national average milk price that is revised annually. Thus, comparisons of PD$ averages over years are affected by changing prices unless recalculated using a single price. The PD$'s in tables 1 and 2 were computed with the price and differential used for the 1981 Sire Summaries (PD$ = $0.0673 PDM + $1.62 PDF).

Average PD's for yield are increasing with each Summary. The most important increases are those for active AI bulls. Those bulls are the ones widely available and are the main contributors to genetic progress. Although we recommend that dairymen select the highest ranking bulls available as service sires, the average PD's of active AI bulls are useful guides for determining how a particular bull ranks when compared with other available bulls.

Table 1.-- Average Predicted Difference (PD) for milk (PDM) in pounds, fat percentage (PD%), fat (PDF) in pounds, and dollars (PD$) for Ayrshire, Guernsey, Holstein, and Jersey bulls in the USDA-DHIA Sire Summaries

Summary date	All bulls					Active AI bulls					Inactive AI bulls[1]					Non-AI bulls				
	Number	PDM	PD%	PDF	PD$[2]	Number	PDM	PD%	PDF	PD$[2]	Number	PDM	PD%	PDF	PD$[2]	Number	PDM	PD%	PDF	PD$[2]
Ayrshire																				
10/74---	1,852	-169	0.00	-6	-21	22	+475	-0.02	+16	+58	228	-57	+0.01	-1	-5	1,602	-194	0.00	-7	-24
5/75---	183	+5	-.01	-1	-1	21	+520	-.03	+18	+64	26	+64	-.01	+1	+6	136	-86	-.01	-4	-12
9/75---	227	-11	-.01	-1	-2	20	+512	-.04	+16	+60	30	+41	-.01	+1	+4	177	-79	.00	-3	-10
1/76---	210	-3	-.01	-1	-2	19	+523	-.03	+18	+64	29	+60	-.01	+2	+7	162	-76	.00	-3	-10
5/76---	185	+80	-.01	+2	+9	22	+516	-.02	+18	+64	28	+70	-.01	+2	+8	135	+11	-.01	0	+1
9/76---	178	+57	-.01	+1	+5	23	+521	-.02	+18	+64	24	-32	.00	-1	-4	131	-9	-.01	-1	-2
1/77---	195	+34	-.01	+1	+4	26	+464	-.02	+16	+57	26	-12	.00	-1	-2	143	-36	-.01	-2	-6
5/77---	443	-37	.00	-2	-6	25	+504	-.02	+18	+63	43	+28	.00	+2	+5	375	-80	.00	-3	-10
9/77---	182	+60	-.01	+2	+7	23	+595	-.04	+19	+71	29	-24	-.01	-1	-3	130	-15	-.01	-1	-3
1/78---	214	+23	-.01	0	+2	25	+527	-.03	+18	+65	30	-5	+.01	+1	+1	159	-51	-.01	-2	-7
7/78---	252	+22	-.01	0	+1	14	+581	-.02	+21	+73	38	+49	+.01	+3	+8	200	-22	-.01	-2	-5
1/79---	298	+25	.00	+1	+3	17	+534	-.02	+19	+67	38	+85	+.01	+2	+9	243	-20	+.01	0	-1
7/79---	285	+34	.00	+1	+4	20	+570	-.02	+20	+71	35	+122	.00	+1	+10	230	-26	+.01	0	-2
1/80---	301	+65	.00	+3	+9	16	+568	-.03	+19	+69	41	+142	+.01	+6	+19	244	+19	.00	+1	+3
7/80---	279	+73	.00	+3	+10	17	+603	-.03	+21	+75	27	+227	-.02	+7	+27	235	+17	.00	+1	+3
1/81---	266	+116	-.01	+4	+14	17	+604	-.03	+21	+75	25	+214	-.02	+8	+27	224	+68	-.01	+2	+8
Guernsey																				
10/74---	9,259	-94	+.01	-4	-13	85	+296	-.03	+11	+38	1,289	-20	.00	-1	-3	7,885	-110	+.01	-4	-14
5/75---	488	+47	.00	+2	+6	77	+387	-.03	+16	+52	43	+54	-.02	+1	+5	368	-25	.00	-1	-3
9/75---	744	+6	.00	+1	+2	80	+383	-.03	+15	+50	64	+44	+.01	+3	+8	600	-48	.00	-1	-5
1/76---	662	+48	-.01	+2	+6	87	+379	-.04	+15	+50	53	+46	-.01	+1	+5	522	-7	-.01	0	0
5/76---	534	+72	-.01	+2	+8	73	+428	-.05	+16	+55	54	+115	-.02	+4	+14	407	+2	-.01	0	0
9/76---	542	+85	-.02	+3	+11	81	+423	-.05	+16	+54	50	+103	-.02	+3	+12	411	+17	-.01	0	+1
1/77---	627	+54	-.01	+2	+7	90	+409	-.05	+15	+52	51	+114	-.02	+4	+14	486	-18	-.01	-1	-3
5/77---	1,506	+4	-.01	0	0	78	+466	-.06	+16	+57	158	+64	-.01	+2	+8	1,270	-32	.00	-1	-4
9/77---	493	+114	-.02	+4	+14	66	+552	-.07	+19	+68	61	+181	-.02	+7	+24	366	+24	-.01	0	+2
1/78---	570	+89	-.02	+3	+11	64	+592	-.07	+22	+75	67	+92	-.02	+3	+11	439	+16	-.01	0	+1
7/78---	729	+98	-.02	+3	+11	51	+637	-.06	+24	+82	90	+194	-.03	+6	+23	588	+37	-.01	+1	+4
1/79---	760	+88	-.01	+3	+11	42	+703	-.06	+27	+91	118	+210	-.04	+6	+24	600	+21	-.01	0	+1
7/79---	767	+101	-.02	+3	+12	42	+749	-.07	+28	+96	112	+214	-.03	+7	+26	613	+36	-.01	+1	+4
1/80---	709	+115	.00	+5	+16	39	+727	-.06	+28	+94	100	+235	-.02	+8	+29	570	+52	+.01	+3	+8
7/80---	691	+159	-.02	+6	+20	44	+785	-.08	+29	+100	104	+301	-.03	+9	+35	543	+81	-.01	+3	+10
1/81---	668	+181	-.03	+6	+22	44	+813	-.08	+30	+103	97	+269	-.03	+9	+33	527	+112	-.02	+3	+12
Holstein																				
10/74---	35,389	-177	.00	-7	-23	779	+368	-.02	+9	+39	3,792	-39	.00	-2	-6	30,818	-208	.00	-8	-27
5/75---	4,605	-79	-.01	-5	-13	771	+416	-.03	+10	+44	403	+75	-.02	0	+5	3,431	-208	.00	-9	-29
9/75---	6,132	-97	-.01	-5	-15	829	+445	-.03	+11	+48	513	+93	-.02	0	+6	4,790	-211	.00	-9	-29
1/76---	5,710	-62	-.02	-5	-12	878	+436	-.04	+9	+44	487	+101	-.02	0	+7	4,345	-180	-.01	-8	-25
5/76---	5,328	-32	-.02	-5	-10	838	+500	-.05	+11	+51	461	+82	-.02	-1	+4	4,029	-156	-.01	-8	-23
9/76---	4,859	-2	-.02	-4	-7	887	+510	-.05	+11	+52	436	+176	-.03	+1	+13	3,536	-152	-.01	-8	-23
1/77---	6,327	-18	-.02	-4	-8	1,011	+480	-.05	+10	+49	480	+122	-.03	-1	+7	4,836	-136	-.01	-8	-22
5/77---	7,852	-40	-.02	-5	-11	908	+554	-.05	+12	+57	822	+128	-.03	0	+9	6,122	-151	-.01	-8	-23
9/77---	6,847	+28	-.03	-3	-3	896	+652	-.06	+14	+67	727	+167	-.04	0	+11	5,224	-99	-.02	-7	-18
1/78---	6,969	+53	-.03	-3	-1	906	+655	-.06	+14	+67	769	+214	-.04	+1	+16	5,294	-73	-.02	-6	-15
7/78---	8,881	+57	-.03	-2	+1	658	+764	-.05	+19	+82	1,340	+275	-.04	+4	+25	6,883	-54	-.02	-6	-13
1/79---	8,900	+92	-.03	-1	+5	667	+880	-.07	+21	+93	1,499	+271	-.04	+4	+25	6,734	-26	-.02	-4	-8
7/79---	10,483	+116	-.03	0	+8	686	+928	-.06	+24	+101	1,884	+299	-.03	+4	+27	7,913	+2	-.02	-3	-5
1/80---	9,453	+177	-.03	+2	+15	725	+977	-.06	+27	+109	1,540	+393	-.03	+5	+35	7,188	+50	-.02	-1	+2
7/80---	10,389	+194	-.03	+3	+18	723	+1,040	-.06	+29	+117	1,948	+419	-.03	+7	+40	7,718	+58	-.01	0	+4
1/81---	10,462	+234	-.02	+5	+24	728	+1,094	-.06	+31	+124	1,890	+463	-.03	+13	+52	7,844	+99	-.03	0	+7
Jersey																				
10/74---	7,027	-119	+.01	-5	-16	93	+388	-.06	+14	+49	896	-8	+.01	0	-1	6,038	-144	+.01	-6	-19
5/75---	564	+29	-.01	0	+2	90	+490	-.07	+18	+62	63	+85	+.01	+4	+12	411	-80	.00	-4	-12
9/75---	787	0	-.01	-1	-2	100	+523	-.09	+18	+64	79	+153	-.02	+6	+20	608	-106	+.01	-5	-15
1/76---	683	+57	-.02	+1	+5	104	+519	-.09	+18	+64	72	+149	-.01	+6	+20	507	-51	.00	-3	-8
5/76---	585	+141	-.03	+5	+18	103	+557	-.09	+20	+70	73	+171	-.02	+7	+23	409	+32	-.01	0	+2
9/76---	597	+121	-.03	+3	+13	104	+574	-.09	+21	+73	58	+137	-.03	+4	+16	435	+11	-.01	-1	-1
1/77---	702	+142	-.03	+4	+16	122	+539	-.09	+19	+67	73	+252	-.05	+8	+30	507	+31	-.01	0	+2
5/77---	1,673	+17	-.02	-1	0	113	+635	-.09	+23	+80	168	+160	-.04	+5	+19	1,392	-50	-.01	-3	-8
9/77---	677	+212	-.05	+6	+24	112	+735	-.12	+25	+90	81	+243	-.06	+6	+26	484	+86	-.03	+1	+7
1/78---	708	+237	-.06	+7	+27	107	+757	-.13	+26	+93	96	+348	-.08	+9	+38	505	+106	-.04	+2	+4
7/78---	997	+215	-.05	+6	+24	101	+803	-.14	+27	+98	141	+371	-.07	+12	+44	755	+107	-.03	+2	+10
1/79---	952	+246	-.06	+7	+28	94	+859	-.16	+28	+103	155	+364	-.07	+12	+44	703	+138	-.04	+3	+14
7/79---	1,053	+305	-.07	+9	+35	86	+982	-.17	+33	+120	184	+418	-.09	+12	+48	783	+204	-.05	+6	+23
1/80---	1,103	+310	-.06	+10	+37	89	+985	-.17	+33	+120	249	+376	-.07	+14	+48	765	+210	-.05	+6	+24
7/80---	1,038	+376	-.08	+12	+45	90	+1,015	-.18	+34	+123	172	+506	-.11	+16	+60	776	+273	-.06	+8	+31
1/81---	1,064	+396	-.09	+12	+46	85	+1,082	-.18	+37	+133	153	+544	-.10	+17	+64	826	+298	-.07	+9	+35

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[1] The PDM and PDF values for 1979 and later Summaries of inactive AI bulls computed by difference. Some smoothing was done for PDF's to alleviate rounding effects.

[2] Calculated by $0.0673 PDM + $1.62 PDF. The constants in this formula differ from those in effect at the time each Summary was released except 1/81.

Table 2.-- Average Predicted Difference (PD) for milk (PDM) in pounds, fat percentage (PD%), fat (PDF) in pounds, and dollars (PD$) for Brown Swiss, Milking Shorthorn, Red and White, and all breeds in the USDA-DHIA Sire Summaries

Summary date	All bulls					Active AI bulls					Inactive AI bulls[1]					Non-AI bulls				
	Number	PDM	PD%	PDF	PD$[2]	Number	PDM	PD%	PDF	PD$[2]	Number	PDM	PD%	PDF	PD$[2]	Number	PDM	PD%	PDF	PD$[2]
									Brown Swiss											
10/74—	1,900	-61	+0.01	-2	-7	33	+364	+0.02	+16	+50	369	-30	+0.01	0	-2	1,498	-78	+0.01	-2	-8
5/75—	252	+95	+.01	+4	+13	32	+438	+.02	+19	+60	33	+172	-.02	+4	+18	187	+23	+.01	+1	+3
9/75—	334	+87	.00	+3	+11	35	+472	.00	+18	+61	38	+81	-.01	+2	+9	261	+36	.00	+1	+4
1/76—	260	+91	.00	+3	+11	39	+467	-.01	+18	+61	33	+80	-.01	+1	+7	188	+15	+.01	+1	+3
5/76—	243	+112	.00	+4	+14	37	+440	-.01	+16	+56	31	+151	-.03	+2	+13	175	+35	.00	+1	+4
9/76—	264	+143	-.01	+4	+16	38	+485	-.02	+17	+60	30	+206	-.03	+4	+20	196	+66	.00	+2	+8
1/77—	250	+144	-.01	+4	+16	44	+537	-.02	+18	+65	33	+138	-.03	+2	+13	173	+45	.00	+2	+6
5/77—	612	+42	.00	+2	+6	39	+596	-.01	+22	+76	93	+54	-.01	+1	+5	480	-6	+.01	0	0
9/77—	291	+152	-.01	+4	+17	45	+680	-.03	+23	+83	43	+60	-.01	0	+4	203	+55	-.01	+1	+5
1/78—	281	+229	-.01	+7	+27	45	+691	-.02	+24	+85	43	+62	-.02	0	+4	193	+159	-.01	+5	+19
7/78—	364	+174	-.01	+5	+20	41	+753	-.03	+26	+93	52	+69	-.02	0	+5	271	+106	.00	+3	+12
1/79—	368	+221	-.02	+7	+26	46	+788	-.05	+25	+94	55	+218	-.02	+3	+20	267	+124	-.01	+4	+15
7/79—	402	+222	-.02	+6	+25	46	+782	-.05	+25	+93	55	+191	-.02	+4	+19	301	+142	-.01	+4	+16
1/80—	349	+272	-.02	+8	+31	45	+803	-.06	+25	+95	48	+254	-.01	+5	+25	256	+182	-.01	+6	+22
7/80—	367	+300	-.03	+9	+35	40	+911	-.06	+29	+108	53	+299	-.03	+8	+33	274	+211	-.02	+6	+24
1/81—	374	+332	-.03	+10	+39	44	+863	-.05	+28	+103	49	+406	-.03	+11	+45	281	+236	-.02	+7	+27
									Milking Shorthorn											
10/74—	459	-7	.00	-1	-2	6	+624	+.01	+24	+81	90	-12	.00	-1	-2	363	-16	.00	-1	-3
5/75—	61	+135	.00	+5	+17	5	+758	.00	+28	+96	5	+212	+.02	+10	+30	51	+66	.00	+2	+8
9/75—	95	+158	.00	+6	+20	8	+742	.00	+28	+95	5	+113	-.01	+3	+12	82	+103	.00	+4	+13
1/76—	96	+166	.00	+6	+21	8	+779	.00	+29	+99	5	+179	+.01	+7	+23	83	+106	.00	+4	+14
5/76—	101	+238	.00	+9	+31	8	+745	.00	+28	+95	6	+181	-.01	+6	+22	87	+195	.00	+7	+24
9/76—	111	+228	.00	+8	+28	9	+704	+.01	+26	+89	6	+133	-.01	+4	+15	96	+190	.00	+7	+24
1/77—	109	+232	-.01	+8	+29	10	+762	.00	+28	+97	5	+257	.00	+9	+32	94	+174	-.01	+6	+21
5/77—	209	+137	.00	+5	+17	10	+743	.00	+27	+94	34	+21	+.01	+1	+3	165	+125	.00	+5	+17
9/77—	200	+177	.00	+7	+23	10	+841	.00	+30	+105	33	+41	+.01	+2	+6	157	+163	.00	+6	+21
1/78—	212	+162	+.01	+7	+22	10	+856	+.01	+32	+109	33	+63	+.02	+4	+11	169	+141	+.01	+6	+19
7/78—	221	+165	+.01	+7	+22	9	+829	+.03	+33	+109	35	+107	+.01	+5	+15	177	+143	+.01	+6	+19
1/79—	194	+280	+.02	+12	+38	11	+865	+.02	+34	+113	35	+113	+.02	+5	+16	148	+276	+.02	+12	+38
7/79—	104	+456	+.02	+19	+61	12	+794	+.02	+31	+104	14	+306	+.05	+14	+43	78	+431	+.02	+18	+58
1/80—	116	+499	+.02	+20	+66	12	+903	+.02	+35	+117	11	+313	+.06	+21	+55	93	+469	+.01	+18	+61
7/80—	120	+585	+.01	+23	+77	11	+985	+.02	+38	+128	12	+511	+.06	+20	+67	97	+549	+.02	+22	+73
1/81—	119	+629	+.02	+25	+83	13	+979	+.03	+39	+129	8	+515	+.02	+24	+74	98	+592	+.02	+24	+79
									Red and White											
7/79—	4	+234	-.02	+5	+24	1	+212	+.04	+13	+35	0	0	.00	0	0	3	+241	-.04	+2	+19
1/80—	6	+48	-.03	-3	-2	1	+174	+.02	+9	+26	0	0	.00	0	0	5	+23	-.04	-5	-7
7/80—	8	+47	-.04	-3	-2	1	+52	+.02	+9	+18	0	0	.00	0	0	6	+29	-.05	-6	-8
1/81—	9	+17	-.03	-3	-4	1	+72	+.06	+11	+23	0	0	.00	0	0	8	+10	-.04	-6	-9
									All breeds											
10/74—	55,886	-150	.00	-6	-20	1,018	+368	-.03	+10	+41	6,664	-31	.00	-1	-4	48,204	-178	.00	-7	-23
5/75—	6,153	-47	-.01	-3	-8	996	+425	-.03	+12	+48	573	+81	-.01	+1	+7	4,584	-166	.00	-7	-23
9/75—	8,319	-66	-.01	-4	-11	1,072	+452	-.04	+12	+50	729	+92	-.02	+1	+8	6,518	-169	.00	-7	-23
1/76—	7,621	-32	-.01	-3	-7	1,135	+444	-.04	+11	+48	679	+100	-.02	+1	+8	5,807	-140	-.01	-7	-21
5/76—	6,976	+2	-.02	-3	-5	1,081	+501	-.05	+12	+53	653	+98	-.02	+1	+8	5,242	-113	-.01	-7	-19
9/76—	6,551	+28	-.02	-2	-1	1,142	+511	-.05	+13	+55	604	+159	-.03	+2	+14	4,805	-103	-.01	-6	-17
1/77—	8,210	+10	-.02	-3	-4	1,303	+484	-.05	+11	+50	668	+132	-.03	+1	+11	6,239	-102	-.01	-6	-17
5/77—	12,295	-20	-.01	-3	-6	1,173	+558	-.05	+14	+60	1,318	+114	-.02	+1	+9	9,804	-107	-.01	-6	-17
9/77—	8,690	+55	-.03	-2	0	1,152	+656	-.06	+16	+70	974	+160	-.03	+1	+12	6,564	-65	-.02	-5	-12
1/78—	8,954	+77	-.03	-1	+4	1,157	+661	-.06	+16	+70	1,038	+201	-.04	+2	+17	6,759	-42	-.02	-5	-11
7/78—	11,444	+78	-.03	-1	+4	874	+758	-.06	+21	+85	1,696	+263	-.04	+5	+26	8,874	-24	-.02	-4	-8
1/79—	11,472	+110	-.03	0	+7	877	+857	-.06	+22	+93	1,900	+269	-.04	-1	+16	8,695	0	-.01	-2	-3
7/79—	13,098	+134	-.03	+1	+11	893	+908	-.05	+25	+102	2,284	+296	-.04	+5	+28	9,921	+27	-.02	-2	-1
1/80—	11,947	+188	-.03	+3	+18	927	+950	-.05	+27	+108	1,899	+378	-.03	+6	+35	9,121	+71	-.02	0	+5
7/80—	12,892	+210	-.03	+4	+21	926	+1,011	-.05	+29	+115	2,316	+411	-.03	+11	+45	9,649	+85	-.02	0	+6
1/81—	12,962	+249	-.02	+6	+26	932	+1,057	-.05	+31	+121	2,222	+457	-.03	+13	+52	9,808	+125	-.02	+2	+12

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[1] The PDM and PDF values for 1979 and later Summaries of inactive AI bulls computed by difference. Some smoothing was done for PDF's to alleviate rounding effects.

[2] Calculated by $0.0673 PDM + $1.62 PDF. The constants in this formula differ from those in effect at the time each Summary was released except for 1/81.

Literature Cited

(1) Grossman, M., and Wiggans, G. R. Average Predicted Differences from Winter 1979 through Summer 1980 Sire Summaries. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(6), pp. 1-3. 1980.

(2) Powell, R. L., Norman, H. D., and Dickinson, F. N. Genetic means and trends of dairy sires in the United States. J. Dairy Sci. 63: 1455-1461. 1980.

(3) Powell, R. L., and Shainline, W. E. Trends in genetic merit of dairy sires at initial proving. J. Dairy Sci. 62: 1655-1661. 1979.

(4) Powell, R. L., and Wiggans, G. R. Requirements for calculation of a Sire Summary. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(6), pp. 4-6. 1980.

(5) U.S. Department of Agriculture. Distribution of active artificial insemination (AI) sires summarized by level of Predicted Difference for milk and dollars. U.S. Dept. Agr. ARS-60-7, Dairy Herd Impr. Ltr. 52(5), pp. 7-12. 1976.

(6) U.S. Department of Agriculture. Distribution of active artificial insemination (AI) sires summarized by level of Predicted Difference for milk and dollars. U.S. Dept. Agr. ARS-NE-60, Dairy Herd Impr. Ltr. 53(3), pp. 4-10. 1977.

(7) U.S. Department of Agriculture. Distribution of active artificial insemination (AI) sires summarized by level of Predicted Difference for milk and dollars. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 54(5), pp. 4-9. 1978.

CHANGES IN THE AIPL GENETIC EVALUATION PROCEDURES

By George R. Wiggans[1]

The primary mission of the Animal Improvement Programs Laboratory (AIPL) is to develop and apply advanced methods for the genetic improvement of dairy cattle. New techniques are incorporated into the sire and cow evaluation procedures from time to time.

The following changes were implemented in recent genetic evaluation runs.

January 1980

All records in AIPL files were projected with new factors. Records with last sample-day production were projected with factors based on last sample-day production[2] rather than on partial lactation production.[3] Those records without last sample-day production were projected by new factors based on partial lactation production.

Prior records of cows that had their identification changed but remained in the same herd were recycled and included in the next run. Previously these records had been sent back to the dairy records processing centers as records of possible twins.

Records of registered cows that had the same birth date and parents but were not identified as twins were accepted as twins if they had successive identification numbers.

July 1980

The required number of days in milk for a cow to appear on the Elite Cow Index was reduced from 150 to 100 days for a single lactation.

The size of the Elite Cow Index was reduced by 40 percent by raising the Cow Index Dollars requirement.

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R., and Powell, R. L. Projection factors for milk and fat lactation records. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(1), 15 pp. 1980.

[3] McDaniel, B. T., Miller, R. H., and Corley, E. L. DHIA factors for projecting incomplete records to 305 days. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 41(6), 21 pp. 1965.

The sire birth date restriction for determining which sires will be evaluated was changed. A sire must have been born within 21 years of the year of the current Sire Summary date to be evaluated.

A similar birth date restriction was imposed for daughters of sires. A daughter must have been born within 20 years of the Sire Summary date to be included in her sire's evaluation.

January 1981

The method of computing the Cow Index (CI) was changed following the procedure developed by Powell.[4] The new procedure includes information on more ancestors by incorporating the dam's CI into the formula for computing the cow's CI. Cows are sequenced by age; therefore, the most recently computed dam's CI is available when computing CI's. A cow with no new information on herself or no new evaluation on her sire does not have a new CI computed.

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[4] Powell, R. L. A procedure for including the dam and maternal grandsire in USDA-DHIA cow indexes. J. Dairy Sci. 61: 794-800. 1978.

CODES USED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

Codes used for data exchange in the National Cooperative Dairy Herd Improvement Program are shown in tables 1-4. Table 1 presents species and breed codes for dairy cattle and goats. Termination codes and reasons for termination (definition) are in table 2. Table 3 lists the codes and tags for type of testing plans, and table 4 lists computing center codes and addresses.

Table 1.--Species and breed codes for dairy cattle and goats

Species code	Species	Breed code	Breed
0------------	Dairy cattle----------	A----------	Ayrshire.
		B----------	Brown Swiss.
		D----------	Red Dane.
		E----------	Dutch Belted.
		G----------	Guernsey.
		H----------	Holstein.
		J----------	Jersey.
		M----------	Milking Shorthorn.
		N----------	Norwegian Red.
		P----------	Red Poll.
		S----------	Simmental.
		U----------	Unknown.
		W----------	Red and White.
		X----------	Mixed breed.
1------------	Dairy goat----------	A----------	Alpine.
		B----------	Oberhasli.
		E----------	Experimental.
		L----------	LaMancha.
		N----------	Nubian.
		P----------	Pygmy.
		S----------	Saanen.
		T----------	Toggenburg.
		U----------	Unknown.
		X----------	Mixed.

Table 2.--Termination codes and reasons for termination

Code	Reason for termination of animal's record
0	Went dry or had 305 days in milk (normal).
1	Missed two or more consecutive tests following at least one valid test or had a period >75 days between consecutive tests, with the animal remaining in the herd in either case. The record up to the missed test should be coded 1; the complete record ≤305 days for such a lactation should be coded 9. Some valid reasons for missed tests are (1) broken, spilled, or accidentally missed samples or (2) animal goes on show circuit during lactation.
2	Sold for dairy purposes or testing of herd discontinued. This code allows animals to have subsequent records in different herds. The other sold or died codes indicate that no new records on the animal are expected.
3	Sold because of low production or any reason not identified specifically.
4	Sold because of reproductive problems.
5	Sold because of disease, injury, or unspecified reasons.
6	Died.
7	Sold because of mastitis or other udder problems.
8	Aborted at ≥152 days from last breeding or at ≥200 days in milk if no breeding date.
9	Although not a reason for termination, this code indicates that the record is not to be used for genetic evaluations for any of the following reasons: (1) Lactation initiated by abortion; (2) complete record with two or more consecutive tests missed;[1] (3) record in which any two consecutive tests were >75 days apart; (4) no test within 75 days of calving or kidding; or (5) no test between freshening and termination date (such records need not be provided).

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[1] Valid part of record should have been submitted to USDA as code 1.

Table 3.--Codes and tags for type of testing plans

USDA code	Tag	Plan
		Official DHI plans (00-19)
00	DHI	Official DHI.
01	DHI-AP	Official DHI AM/PM with Monitoring Device.
02	DHI-APCS	Official DHI with Alternate AM/PM Component Sampling.
		Official DHIR plans (20-29)
20	DHIR	Official DHIR.
21	DHIR-AP	Official DHIR AM/PM with Monitoring Device.
22	DHIR-APCS	Official DHIR with Alternate AM/PM Component Sampling.
		Owner-Sampler plans (40-59)
40	OS	Owner-Sampler.
41	OS-AP	Owner-Sampler AM/PM.
42	OS-APCS	Owner-Sampler with Alternate AM/PM Component Sampling.
43	OS-MO	Owner-Sampler Milk Only.
44	OS-MO-AP	Owner-Sampler AM/PM Milk Only.
45	OS-ACT	Owner-Sampler with Average (Breed or Plant) Components Used.
46	OS-AP-ACT	Owner-Sampler AM/PM with Average (Breed or Plant) Components Used.
47	OS-TCT	Owner-Sampler with Trimonthly Component Tests.
48	OS-MO-TMW	Owner-Sampler Milk Only with Trimonthly Milk Weights.
		Commercial plans (60-69)
60	Comm	Commercial.
61	Comm-AP	Commercial AM/PM.
62	Comm-APCS	Commercial with Alternate AM/PM Component Sampling.
		Supervised nonofficial plans (70-79)
70	SS	Supervised Sampling.
71	SS-AP	Supervised Sampling AM/PM.
72	SS-APCS	Supervised Sampling with Alternate AM/PM Component Sampling.
73	SS-MO	Supervised Sampling Milk Only.
74	SS-MO-AP	Supervised Sampling AM/PM Milk Only.
		Basic plans (80-89)
80	Basic	Basic Management Information Plan.
		Other plans (90-99)
98	Other	Other dairy recordkeeping plans.

Table 4.--Dairy records processing center codes and addresses

Code	State	Address
01	California	Agri-Tech Analytics, P.O. Box 177, Tulare 93274.
03	Iowa	DRPC, Kildee Hall, Iowa State University, Ames 50011.
04	Michigan	Michigan DHI, P.O. Box 23158, Lansing 48909.
05	Minnesota	DRPC, 101 Haecker Hall, University of Minnesota, St. Paul 55108.
06	New York	Northeast DRPL, B-28 Morrison Hall, Cornell University, Ithaca 14853.
07	North Carolina	DRPC at Raleigh, P.O. Box 5065, North Carolina State University, Raleigh 27650.
09	Pennsylvania	DRPC, 9 Borland Laboratory, Pennsylvania State University, University Park 16802.
10	Utah	DHI-Provo, P.O. Box 1427, Provo 84601.
11	Washington	WSU Computing Center, 2147 CS/M Building, Washington State University, Pullman 99164.
12	Wisconsin	WDHIC, 6225 University Avenue, Madison 53705.

CURRENT PUBLICATIONS DESCRIBING ASPECTS OF THE USDA BULL AND COW EVALUATIONS

The following publications describe aspects of the USDA bull and cow evaluations. Copies may be obtained from the Animal Improvement Programs Laboratory (AIPL), Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

A procedure for including the dam and maternal grandsire in USDA-DHIA cow indexes. R. L. Powell. J. Dairy Sci. 61: 794-800. 1978.

Adjusting records from three-times-a-day to two-times-a-day milking basis. G. R. Wiggans and M. Grossman. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(4), pp. 7-8. 1980.

AIPL Format No. 4. 16 pp. (Mimeo.) (Rev. Apr. 1981.) (Format for records submitted to AIPL with associated codes.)

An economic index for determining the relative value of milk and fat in Predicted Differences of bulls and Cow Index values of cows. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS 44-223, 47(1), 34 pp. 1971.

Editing of lactation records used in USDA-DHIA genetic evaluations of sires and cows. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS 44-222, 46(6), 32 pp. 1970. (Some edit limits were revised in 1980.)

Factors for estimating sample-day yield in AM-PM sampling plans. G. E. Shook, E. L. Jensen, and F. N. Dickinson. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(4), pp. 25-30. 1980.

Factors for improving accuracy of estimates of test-interval yield. G. E. Shook, L. P. Johnson, and F. N. Dickinson. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(4), pp. 9-24. 1980.

Official Dairy Herd Improvement Rules. U.S. Govt. Printing Off. 729-675/603, 17 pp. 1977.

Projection factors for milk and fat lactation records. G. R. Wiggans and R. L. Powell. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(1), 15 pp. 1980.

The USDA-DHIA Modified Contemporary Comparison, Sire Summary and Cow Index Procedures. U.S. Dept. Agr. Prod. Res. Rpt. No. 165, 70 pp. 1976.

USDA-DHIA Factors for Standardizing 305-Day Lactation Records for Age and Month of Calving. H. D. Norman, P. D. Miller, B. T. McDaniel, and others. U.S. Dept. Agr. ARS-NE-40, 91 pp. 1974.

USDA-DHIA Milk Components Sire Summary. U.S. Dept. Agr. Prod. Res. Rpt. No. 178, 28 pp. 1979.

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May 1981

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DAIRY HERD IMPROVEMENT
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- Characteristics of the New USDA Cow Indexes
- Computation and Interpretation of the Percentage of First Lactation Records Culled in Sire Summaries

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Dairy Herd Improvement Letter

CHARACTERISTICS OF THE NEW USDA COW INDEXES

By Rex L. Powell[1]

The U.S. Department of Agriculture (USDA) began calculating genetic indexes for dairy cows in 1963. These estimates of transmitting ability for milk, fat, fat percentage, and dollars are Cow Indexes (CI's). Until the 1981 CI, only data from the cow and her sire (paternal half sisters) were included. Means, standard deviations, and distributions of CI's were published in 1978.[2] A new indexing method[3] was implemented by USDA for the January 1981 CI. The new formula includes the dam's CI computed from data on at least the dam and maternal grandsire. If the dam is indexed under the new procedure, the cow's CI can be affected by her maternal granddam's CI. The increased accuracy in predicting sons' progeny tests was demonstrated[4] using a historical data set. Statistics on the new CI's are needed for theoretical studies and to interpret the CI's properly.

The numbers of cows and means and standard deviations for the July 1980 and January 1981 CI's are given in table 1 for comparison. Both data sets include cows that had calvings during the previous 2 years. New CI's are computed semiannually for all daughters of sires summarized and for cows with records submitted since the previous CI. Thus, a few cows in the January 1981 data set were not evaluated by the new method. The 2-year period for last calving is used to determine which cows have CI's sent to computing centers and which cows are considered further for Elite status. The CI's for milk (CIM) and fat (CIF) are combined into an economic index, CI Dollars (CI\$), computed as

$$CI\$ = (\$0.0673 \times CIM) + (\$1.62 \times CIF)$$

Research that applied the old and new CI methods to the same data showed that the mean CIM was increased 13 pounds or less by the new method[4] except for the Ayrshire mean CIM, which was increased 29 pounds. Therefore, the differences in table 1 between the means for the two data sets are largely due to genetic changes in the populations. The means are not directly comparable across breeds, but they do suggest the genetic progress relative to the base population. The standard deviations are of greater interest. The new method increased the standard deviations by 7.3 to 13.7 percent. Addition of the dam's CI to the CI equation increased the range of the CI's.

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Powell, R. L. Properties of USDA-DHIA Cow Indexes. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS-60-11, 54(1), 6 pp. 1978.

[3] Powell, R. L. A procedure for including the dam and maternal grandsire in USDA-DHIA Cow Indexes. J. Dairy Sci. 61: 794-800. 1978.

[4] Powell, R. L., Norman, H. D., and Elliott, R. M. Accuracy of genetic indexes of cows from adding relatives. J. Dairy Sci. 64: (In press). 1981.

The means and standard deviations in table 1 were for all cows, both registered and grade. The corresponding values for registered cows only were very similar for all breeds except Holsteins, because 81 to 96 percent of the cows included in the other breeds' data sets were registered but only 46 percent of the Holstein cows were registered. Means and standard deviations for 852,905 registered Holstein cows in the January 1981 data set were $31.3 ± 53.4 for CI$, 291 ± 456 pounds for CIM, and 7.3 ± 16.1 pounds for CIF. Means were lower for registered cows. Previous work[5] has shown that genetic merit of sires of grade cows is higher than that of sires of registered cows. Standard deviations of CI's were larger for registered Holsteins than for all Holsteins, probably because fewer dams (72 percent) are identified for grade cows. Only sire-identified cows are accepted for USDA files. The dam cannot contribute to a CI unless identified, and, therefore, for cows without identified dams, the new method of indexing is exactly the same as the old method.

Tables 2 through 4 show the distributions of CI$, CIM, and CIF. The symmetry of the distributions is impressive. A comparison of the mean and median values is an approximate test for skewness. For CI$, medians are $28 for Ayrshires, $37 for Brown Swiss, $30 for Guernseys, $34 for Holsteins, $44 for Jerseys, and $47 for Milking Shorthorns. These medians are very close to the means and suggest that skewness is not likely to be serious. Tables 2 through 4 provide the basis for determining where a particular cow ranks among all cows of a breed.

Cows of potential interest as dams of bulls are identified and given Elite status. Only registered cows that are likely to be alive (according to last record termination code and calving during the previous 2 years) are considered. Cows must have at least 100 days in milk for a single record and an average of at least three modified contemporaries across lactations. Cows passing these edits are termed "eligible." The other requirements used in January 1981 and the number and percentage Elite are in table 5. The percentage given is determined by dividing the number Elite by the number eligible.

The major screening for Elite status is based on CI$. Although the mean CI$ was changed little by the new procedure, the increased variation caused the CI$ value required for Elite status to increase substantially. The other requirements in table 5 eliminate cows from Elite status that are not likely to be chosen as dams of sires, regardless of their genetic estimates. Removal of these other requirements is under consideration. Elimination of the phenotypic requirements would have increased the number of Elite cows by 8 to 22 percent. Keeping all present requirements except registration would increase the number of cows meeting the standards of table 5 by 3 to 45 percent. The larger increase is for Holsteins because of the larger proportion of grade cows.

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[5] Powell, R. L., Norman, H. D., and Dickinson, F. N. Genetic means and trends of dairy sires in the United States. J. Dairy Sci. 63: 1455-1461. 1980.

Relative rank of higher CI$ cows among eligible cows is indicated in table 6. The percentages generally agree with those in table 2. The most consistent differences are higher percentages for Holsteins in table 6 than in table 2, which are caused by the proportion of grade cows lacking identification of the dam.

In summary, the new method of cow indexing has increased the standard deviations of CI's by 7.3 to 13.7 percent. Increase in variation of CI's was larger for registered cows, because all their dams are identified. The effect of the larger range is most apparent on CI$ values required for Elite status. Tables 2 through 4 and table 6 provide information needed to determine the relative rank of a cow among all cows or among cows eligible for Elite status. Eliminating phenotypic and registration requirements for Elite status would increase the numbers of cows meeting CI$ requirements by 12 to 55 percent.

Table 1.--Numbers of cows and means and standard deviations of Cow Indexes for dollars (CI$), milk (CIM), and fat (CIF) for data released following July 1980 and January 1981 evaluations[1]

Breed	Cows	CI$[2]	CIM	CIF
	Number	Dollars	Pounds	Pounds
		July 1980 (old method)		
Ayrshire------------	26,862	20.1 ± 39.5	168 ± 327	5.5 ± 11.5
Brown Swiss---------	34,047	29.4 ± 45.9	242 ± 365	8.2 ± 14.0
Guernsey------------	74,903	25.1 ± 37.7	191 ± 288	7.6 ± 12.3
Holstein------------	1,722,085	26.8 ± 45.1	256 ± 389	5.9 ± 13.7
Jersey--------------	113,159	33.8 ± 41.1	282 ± 321	9.2 ± 13.2
Milking Shorthorn---	4,266	37.4 ± 42.8	279 ± 343	11.5 ± 12.8
		January 1981 (new method)		
Ayrshire------------	26,997	27.8 ± 42.4	231 ± 351	7.6 ± 12.4
Brown Swiss---------	34,592	37.8 ± 50.1	308 ± 400	10.5 ± 15.3
Guernsey------------	73,744	31.1 ± 41.0	236 ± 313	9.4 ± 13.5
Holstein------------	1,837,219	33.3 ± 49.0	313 ± 423	7.6 ± 14.8
Jersey--------------	116,215	42.7 ± 46.3	356 ± 365	11.6 ± 14.8
Milking Shorthorn---	4,326	49.3 ± 47.6	371 ± 377	15.0 ± 14.3

[1] Data include cows calving during the preceding 2 years.

[2] CI$ = ($0.0673 × CIM) + ($1.62 × CIF).

Table 2.--Frequency distribution of Cow Index Dollars by breed[1]

Range (dollars)	Ayrshire		Brown Swiss		Guernsey		Holstein		Jersey		Milking Shorthorn	
	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
More than 169---	0.1	(0.1)	0.5	(0.5)	0.1	(0.1)	0.4	(0.4)	0.3	(0.3)	1.1	(1.1)
160 to 169---	.1	(.2)	.3	(.8)	.1	(.2)	.2	(.6)	.2	(.5)	.4	(1.5)
150 to 159---	.1	(.3)	.5	(1.3)	.1	(.3)	.4	(1.0)	.4	(.9)	.7	(2.2)
140 to 149---	.2	(.5)	.8	(2.1)	.2	(.5)	.6	(1.6)	.7	(1.6)	1.6	(3.8)
130 to 139---	.3	(.8)	1.2	(3.3)	.5	(1.0)	.9	(2.5)	1.1	(2.7)	1.6	(5.4)
120 to 129---	.8	(1.6)	1.8	(5.1)	.9	(1.9)	1.4	(3.9)	1.7	(4.4)	2.3	(7.7)
110 to 119---	1.3	(2.9)	2.5	(7.6)	1.4	(3.3)	2.0	(5.9)	2.6	(7.0)	3.1	(10.8)
100 to 109---	1.9	(4.8)	3.5	(11.1)	2.1	(5.4)	2.7	(8.6)	3.6	(10.6)	4.3	(15.1)
90 to 99---	2.8	(7.6)	4.4	(15.5)	3.2	(8.6)	3.6	(12.2)	4.7	(15.3)	5.0	(20.1)
80 to 89---	3.9	(11.5)	5.3	(20.8)	4.1	(12.7)	4.6	(16.8)	6.1	(21.4)	5.2	(25.3)
70 to 79---	4.8	(16.3)	6.1	(26.9)	5.1	(17.8)	5.7	(22.5)	7.2	(28.6)	6.9	(32.2)
60 to 69---	6.1	(22.4)	6.6	(33.5)	6.2	(24.0)	6.7	(29.2)	8.0	(36.6)	7.5	(39.7)
50 to 59---	7.4	(29.8)	7.1	(40.6)	7.5	(31.5)	7.6	(36.8)	8.6	(45.2)	7.8	(47.5)
40 to 49---	9.0	(38.8)	7.5	(48.1)	8.7	(40.2)	8.2	(45.0)	8.5	(53.7)	8.5	(56.0)
30 to 39---	9.2	(48.0)	7.6	(55.7)	9.5	(49.7)	8.4	(53.4)	8.3	(62.0)	8.1	(64.1)
20 to 29---	9.3	(57.3)	7.6	(63.3)	9.8	(59.5)	8.1	(61.5)	7.7	(69.7)	8.1	(72.2)
10 to 19---	9.3	(66.6)	7.4	(70.7)	9.6	(69.1)	7.6	(69.1)	7.0	(76.7)	6.9	(79.1)
0 to 9---	8.5	(75.1)	6.6	(77.3)	8.7	(77.8)	6.8	(75.9)	6.0	(82.7)	6.1	(85.2)
-10 to -1---	6.8	(81.9)	5.6	(82.9)	7.1	(84.9)	5.9	(81.8)	4.8	(87.5)	4.7	(89.9)
-20 to -11---	5.6	(87.5)	4.9	(87.8)	5.5	(90.4)	4.8	(86.6)	3.8	(91.3)	4.2	(94.1)
-30 to -21---	4.2	(91.7)	3.8	(91.6)	3.8	(94.2)	3.8	(90.4)	2.7	(94.0)	2.6	(96.7)
-40 to -31---	3.2	(94.9)	2.8	(94.4)	2.5	(96.7)	3.0	(93.4)	2.0	(96.0)	1.7	(98.4)
-50 to -41---	2.1	(97.0)	2.0	(96.4)	1.5	(98.2)	2.2	(95.6)	1.5	(97.5)	.8	(99.2)
-60 to -51---	1.2	(98.2)	1.4	(97.8)	.9	(99.1)	1.5	(97.1)	.9	(98.4)	.4	(99.6)
-70 to -61---	.8	(99.0)	.9	(98.7)	.5	(99.6)	1.1	(98.2)	.6	(99.0)	.2	(99.8)
-80 to -71---	.5	(99.5)	.6	(99.3)	.2	(99.8)	.7	(98.9)	.4	(99.4)	.1	(99.9)
Less than -80---	.5	(100.0)	.7	(100.0)	.2	(100.0)	1.1	(100.0)	.6	(100.0)	.1	(100.0)

[1] Cumulative frequencies in parentheses.

Table 3.--Frequency distribution of Cow Index Milk by breed[1]

Range (nearest 10 pounds)	Ayrshire		Brown Swiss		Guernsey		Holstein		Jersey		Milking Shorthorn	
	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
More than 1,290---	0.2	(0.2)	0.8	(0.8)	0.1	(0.1)	1.2	(1.2)	0.5	(0.5)	1.0	(1.0)
1,200 to 1,290---	.2	(.4)	.6	(1.4)	.1	(.2)	.8	(2.0)	.5	(1.0)	1.3	(2.3)
1,100 to 1,190---	.3	(.7)	1.0	(2.4)	.3	(.5)	1.3	(3.3)	.9	(1.9)	1.4	(3.7)
1,000 to 1,090---	.9	(1.6)	1.8	(4.2)	.6	(1.1)	2.0	(5.3)	1.8	(3.7)	2.2	(5.9)
900 to 990---	1.4	(3.0)	2.7	(6.9)	1.2	(2.3)	3.0	(8.3)	2.9	(6.6)	2.8	(8.7)
800 to 890---	2.8	(5.8)	4.1	(11.0)	2.1	(4.4)	4.1	(12.4)	4.6	(11.2)	4.5	(13.2)
700 to 790---	4.3	(10.1)	5.8	(16.8)	3.5	(7.9)	5.4	(17.5)	6.3	(17.5)	6.2	(19.4)
600 to 690---	5.4	(15.5)	7.1	(23.9)	5.3	(13.2)	6.8	(24.6)	8.2	(25.7)	7.1	(26.5)
500 to 590---	7.2	(22.7)	8.1	(32.0)	7.2	(20.4)	8.2	(32.8)	10.1	(35.8)	8.7	(35.2)
400 to 490---	8.8	(31.5)	9.4	(41.4)	9.0	(29.4)	9.2	(42.0)	10.7	(46.5)	10.2	(45.4)
300 to 390---	10.1	(41.6)	9.5	(50.9)	11.1	(40.5)	9.6	(57.2)	10.7	(57.2)	10.8	(56.2)
200 to 290---	11.3	(52.9)	10.0	(60.9)	12.6	(53.1)	9.6	(61.2)	10.2	(67.4)	10.5	(66.7)
100 to 190---	11.1	(64.0)	9.0	(69.9)	12.7	(65.8)	8.8	(70.0)	8.9	(76.3)	9.1	(75.8)
0 to 90---	10.7	(74.7)	9.1	(78.0)	11.7	(77.5)	7.7	(77.7)	7.4	(83.7)	8.3	(84.1)
-100 to -10---	8.6	(83.3)	6.8	(84.8)	9.2	(86.7)	6.4	(84.1)	5.8	(89.5)	6.3	(90.4)
-200 to -110---	6.4	(89.7)	5.2	(90.0)	6.3	(93.0)	5.1	(89.2)	4.0	(93.5)	4.4	(94.8)
-300 to -210---	4.5	(94.2)	3.9	(93.9)	3.7	(96.7)	3.7	(92.9)	2.7	(96.2)	2.8	(97.6)
-400 to -310---	2.7	(96.9)	2.6	(96.5)	1.9	(98.6)	2.6	(95.5)	1.7	(97.9)	1.4	(99.0)
-500 to -410---	1.6	(98.5)	1.7	(98.2)	.9	(99.5)	1.8	(97.3)	1.0	(98.9)	.6	(99.6)
-600 to -510---	.8	(99.3)	.9	(99.1)	.3	(99.8)	1.1	(98.4)	.6	(99.5)	.2	(99.8)
-700 to -610---	.4	(99.7)	.5	(99.6)	.1	(99.9)	.7	(99.1)	.3	(99.8)	.1	(99.9)
Less than -700---	.3	(100.0)	.4	(100.0)	.1	(100.0)	.9	(100.0)	.2	(100.0)	.1	(100.0)

[1] Cumulative frequencies in parentheses.

Table 4.--Frequency distribution of Cow Index Fat by breed[1]

Range (pounds)	Ayrshire		Brown Swiss		Guernsey		Holstein		Jersey		Milking Shorthorn	
	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
More than 49---	0.1	(0.1)	0.6	(0.6)	0.2	(0.2)	0.3	(0.3)	0.5	(0.5)	1.3	(1.3)
45 to 49---	.1	(.2)	.8	(1.4)	.4	(.6)	.4	(.7)	.8	(1.3)	1.3	(2.6)
40 to 44---	.4	(.6)	1.6	(3.0)	.9	(1.5)	.9	(1.6)	1.7	(3.0)	2.6	(5.2)
35 to 39---	1.0	(1.6)	3.1	(6.1)	2.2	(3.7)	1.8	(3.4)	3.0	(6.0)	4.3	(9.5)
30 to 34---	2.4	(4.0)	5.1)	(11.2)	3.9	(7.6)	3.3	(6.7)	5.1	(11.1)	6.8	(16.3)
25 to 29---	4.6	(8.6)	7.3	(18.5)	6.2	(13.8)	5.6	(12.3)	7.9	(19.0)	8.6	(24.9)
20 to 24---	7.9	(16.5)	9.6	(28.1)	8.6	(22.4)	8.3	(20.6)	10.6	(29.6)	11.1	(36.0)
15 to 19---	11.7	(28.2)	11.1	(39.2)	11.5	(33.9)	11.0	(31.6)	12.4	(42.0)	12.7	(48.7)
10 to 14---	15.3	(43.5)	12.2	(51.4)	14.1	(47.0)	12.9	(44.5)	13.5	(55.5)	14.3	(63.0)
5 to 9---	16.5	(60.0)	16.7	(64.1)	14.9	(62.9)	13.6	(58.1)	12.9	(68.4)	12.9	(75.9)
0 to 4---	14.7	(74.7)	11.8	(75.9)	13.7	(76.6)	19.8	(77.9)	11.3	(79.7)	9.9	(85.8)
-5 to -1---	11.2	(85.9)	9.5	(85.4)	10.6	(87.2)	3.6	(81.5)	8.5	(88.2)	8.1	(93.9)
-10 to -6---	7.0	(92.9)	6.6	(92.0)	6.6	(93.8)	7.7	(89.2)	5.4	(93.6)	3.7	(97.6)
-15 to -11---	4.0	(96.9)	4.0	(96.0)	3.6	(97.4)	5.0	(94.2)	3.1	(96.7)	1.7	(99.3)
-20 to -16---	2.0	(98.9)	2.2	(98.2)	1.7	(99.1)	3.0	(97.2)	1.7	(98.4)	.4	(99.7)
-25 to -21---	.7	(99.6)	1.0	(99.2)	.6	(99.7)	1.6	(98.8)	.9	(99.3)	.2	(99.9)
-30 to -26---	.2	(99.8)	.5	(99.7)	.2	(99.9)	.6	(99.4)	.4	(99.7)	.0	(99.9)
Less than -30---	.2	(100.0)	.3	(100.0)	.1	(100.0)	.6	(100.0)	.3	(100.0)	.1	(100.0)

[1] Cumulative frequencies in parentheses.

Table 5.--Screening levels for mature-equivalent (ME) yield, deviated yield, and Cow Index Dollars (CI$) for a cow to appear on the Elite Cow Index and numbers and percentages of eligible cows qualifying

Breed	Screening levels					Cows qualifying as Elite	
	ME yield		Deviated yield				
	Milk	Fat	Milk	Fat	CI$		
	Pounds	Pounds	Pounds	Pounds	Dollars	Number	Pct
Ayrshire-------------------	12,000	450	1,000	0	106	709	4.0
Brown Swiss----------------	13,000	510	1,300	0	125	942	4.0
Guernsey-------------------	11,000	470	1,000	0	110	1,597	3.6
Holstein-------------------	15,000	530	1,500	0	151	9,947	1.5
Jersey---------------------	10,000	470	1,000	0	128	2,200	3.0
Milking Shorthorn----------	11,000	400	1,000	0	121	193	6.7

Table 6.--Percentage of cows meeting or exceeding various levels of Cow Index Dollars (CI$) among cows eligible for Elite status

Breed	Percentage at or above CI$ of--						
	110	120	130	140	150	160	170
Ayrshire-------------------	3.3	2.0	1.0	0.6	0.3	0.2	0.1
Brown Swiss----------------	6.9	4.9	3.3	2.2	1.4	.9	.6
Guernsey-------------------	3.6	2.2	1.2	.7	.4	.2	.1
Holstein-------------------	6.4	4.7	3.4	2.4	1.6	1.0	.6
Jersey---------------------	6.2	4.1	2.7	1.7	1.0	.6	.3
Milking Shorthorn----------	9.3	6.9	5.2	3.6	2.1	1.5	1.1

COMPUTATION AND INTERPRETATION OF THE PERCENTAGE OF FIRST LACTATION RECORDS CULLED IN SIRE SUMMARIES

By Rex L. Powell[1]

Profitable cows are not only productive but free from problems that lead to added expense or shortened lives. Only production is considered in Predicted Difference (PD). Supplemental information in the form of the percentage of first lactation records culled (%CUL) is included with PD's when released. The %CUL is the percentage of records having termination codes 3 through 7[2] among first lactation records initiated at least a year before the cutoff date for the USDA-DHIA Sire Summary run. Termination codes 3 through 7 indicate that the cow was sold for other than dairy purposes or had died.

The 1-year interval insures that all lactations considered have had an opportunity to reach 305 days and that their records have been submitted to the Animal Improvement Programs Laboratory. Without the year requirement, %CUL would be too high, because the first cows with terminated lactations would have codes 3 through 7 and cows going dry or reaching 305 days would not be fairly represented. To be released, the %CUL must be based on at least 20 usable daughters meeting the above requirement. This change from the previous requirement of 10 daughters takes effect with the July 1981 Summary and should make the %CUL more indicative of the final culling rate.

A double asterisk (**) in the %CUL field means that fewer than 50 percent of the daughters had first lactation records. If there were not 20 daughters with first lactations initiated a year before the cutoff date for a Sire Summary run, a triple asterisk (***) appears. If both conditions exist, ** takes precedence over ***.

The most common misunderstanding regarding %CUL is the number of daughters used in the calculation. If there are 50 daughters in a Sire Summary, %CUL often is assumed to be based on all 50 daughters. In fact, it is possible that none of the 50 were eligible for inclusion in %CUL.

The %CUL is given in the heading of Form 1202 (USDA-DHIA Sire Summary Record). It is not easy to verify %CUL from the daughter data on this form, because the data are designed to provide the latest status for each daughter. Specifically, the date and age of last calving, last termination code, and the code[3] may pertain to a record in progress (RIP) that was too short (less than 40 days) to be included in genetic evaluations. Average days in milk, number of records, and other information pertain to the data used in genetic evaluations.

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[2] U.S. Department of Agriculture. Codes used in the National Cooperative Dairy Herd Improvement Program. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 57(1), pp. 12-15. 1981.

As an example, assume a July 1981 Sire Summary for a bull includes information from 89 daughters. To compute %CUL, we first need to select the daughters to be considered.[4] Single lactation cows must have calved 365 days before the cutoff date for the Sire Summary run. The cutoff date varies but is approximately May 20 for the July run and November 20 for the January run.

A Form 1202 with a line of information for each of 12 daughters of our example bull is in figure 1. The data demonstrate many of the situations encountered when trying to determine which daughters contributed to %CUL. Daughters 21XYZ1258 and 21XYZ1901 were included in %CUL as having milked 305 days or gone dry earlier (termination code 0) for the first lactation. Note that a blank is used on Form 1202 instead of a zero so that nonzero codes are identified more readily. Daughters 21XYZ1260, 21XYZ1949, and 21XYZ1987 have first calving dates that are after the cutoff date for the run. Therefore, they are not included in %CUL. Daughter 21XYZ1953 had a borderline calving date but was not included in %CUL because the age at calving did not fit the definition of a first lactation.[5] In general, if the number of records is greater than 1, the daughter is included in %CUL as having a first lactation termination code of 0. Thus, 21XYZ1417 and 21XYZ1851 are included in %CUL.

At first glance, 21XYZ1842 would not appear to qualify for %CUL because of the single record, being too old, and calving too recently. However, the age and date of calving are for her second lactation. There are two clues: A single record of 305 days would not have started with the listed calving date and a 305-day record would not be a RIP. Therefore, she is included in %CUL. Daughters 21XYZ1912 and 21XYZ1917 are included in %CUL as culled daughters. The reasons for culling were mastitis or other udder problem (termination code 7) and low production (termination code 3). Daughter 21XYZ1941 was sold for dairy purposes and is included in %CUL but is not treated as a cull. Remember that %CUL is the percentage of qualifying first lactations terminated with codes 3 through 7. Of the 12 daughters in figure 1, 8 were included in %CUL with 2 of them culls.

Of the 89 daughters in our example, 25 qualified and 5 were culled; therefore, %CUL was 20 percent. Of the 64 daughters not qualifying, 58 had single lactation RIP's. One was too old at first calving, and five were culled or had complete lactations but had calved too recently. Only 25 of 89 daughters qualified for inclusion of their records in computing %CUL.

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[3] Only two nonblank characters appear in the column entitled "Code." An R indicates the last record is a record in progress and is accompanied by a termination code of 1. An N indicates that there were no usable records for the daughter.

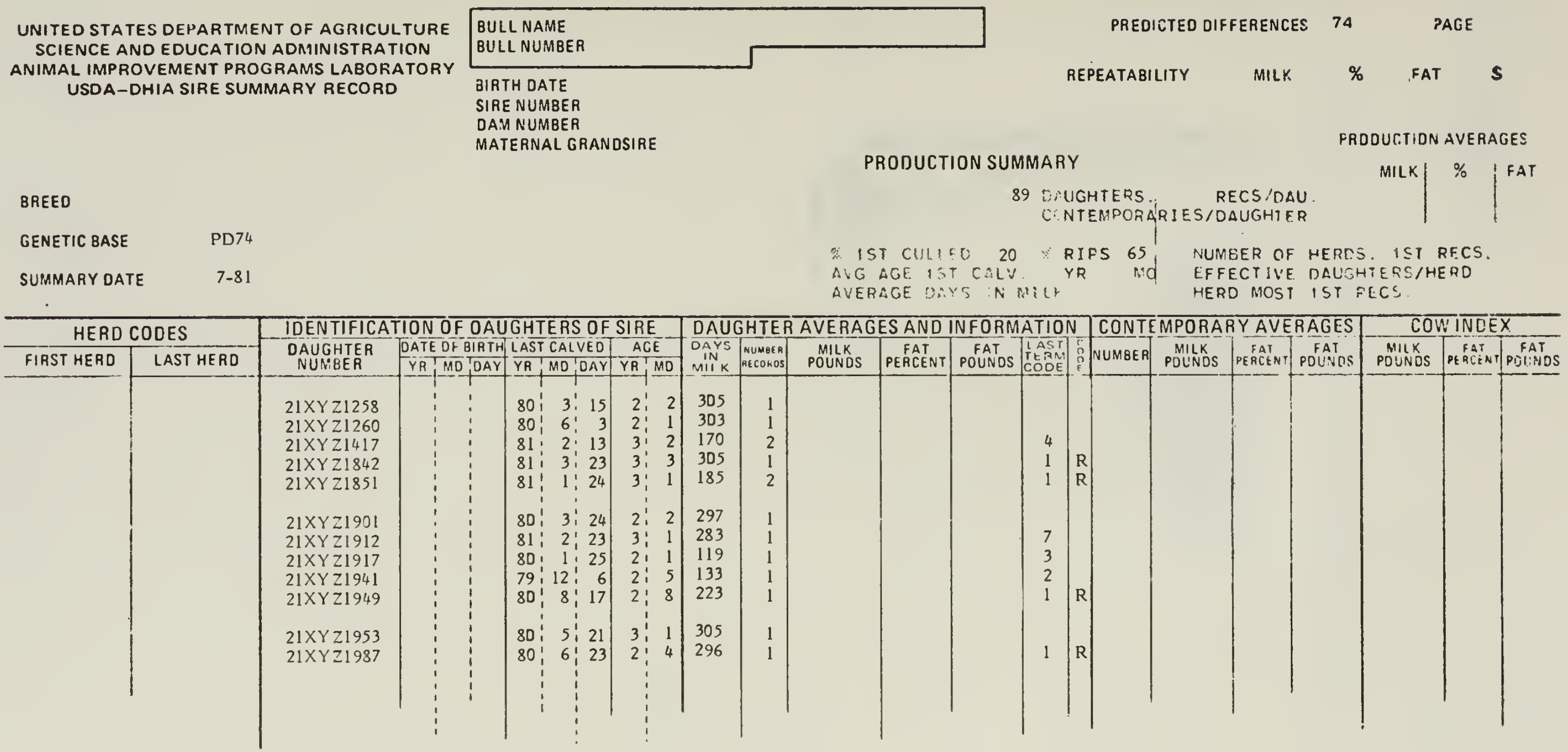
[4] The 89 daughters do not include any daughters with an N in the "Code" column.

[5] First lactations are those without a previous dry period and initiated at less than 36 months (1,096 days) of age when coded as a first lactation or less than 35 months (1,065 days) when lactation number is not reported.

The percentage of first lactations that are RIP's (%RIP) can be a guide to the number of cows qualifying. In this example, %RIP is 65 percent (100 × 58/89). The maximum number of cows that could qualify is the number of daughters times [1 - (%RIP/100)] or, in this example, 89 × (1-0.65) = 31. This approximation is helpful in understanding %CUL. If %RIP is high for a young bull, the %CUL entry almost always will be ***. If %CUL is reported, the approximation gives the maximum number of cows that could be included and thus indicates relative accuracy.

What does the 20 percent mean? Of cows that were judged to have had an opportunity to complete their first lactation normally, 20 percent did not. Average %CUL is about 10 percent; therefore, the bull in the example has a high culling rate. As a rule, high %CUL is an unfavorable trait for a bull. Primary emphasis should be on PD, and that emphasis tends to favor low %CUL bulls, because sire PD for milk yield and %CUL are correlated -0.20 to -0.45. However, when based on a small number of daughters, high or low %CUL may suggest that the sample reflects conditions that are unusual and unlikely to be repeated. There is some evidence that low %CUL may indicate that later PD's will decrease as larger samples of daughters are available. Thus, a high %CUL may be positively associated with a future increase in PD and vice versa, in contrast with the normal inference that a high %CUL is always undesirable. Based on small numbers of daughters, %CUL suggests the direction of change in PD, but with limited accuracy. Based on large numbers of daughters, %CUL largely reflects what is known already from the PD but also may suggest differences in daughter reproduction, udder characteristics, and many other traits bearing on dairyman satisfaction with a bull's daughters.

GPO 880-787



UNITED STATES DEPARTMENT OF AGRICULTURE
SCIENCE AND EDUCATION ADMINISTRATION
ANIMAL IMPROVEMENT PROGRAMS LABORATORY
USDA–DHIA SIRE SUMMARY RECORD

BULL NAME
BULL NUMBER

BIRTH DATE
SIRE NUMBER
DAM NUMBER
MATERNAL GRANDSIRE

PREDICTED DIFFERENCES 74 PAGE

REPEATABILITY MILK % FAT $

BREED

GENETIC BASE PD74

SUMMARY DATE 7-81

PRODUCTION SUMMARY

89 DAUGHTERS RECS/DAU.
CONTEMPORARIES/DAUGHTER

% 1ST CULLED 20 % RIPS 65
AVG AGE 1ST CALV. YR MO
AVERAGE DAYS IN MILK

NUMBER OF HERDS. 1ST RECS.
EFFECTIVE DAUGHTERS/HERD
HERD MOST 1ST RECS.

PRODUCTION AVERAGES

MILK	%	FAT

HERD CODES		IDENTIFICATION OF DAUGHTERS OF SIRE									DAUGHTER AVERAGES AND INFORMATION							CONTEMPORARY AVERAGES				COW INDEX		
FIRST HERD	LAST HERD	DAUGHTER NUMBER	DATE OF BIRTH			LAST CALVED			AGE		DAYS IN MILK	NUMBER RECORDS	MILK POUNDS	FAT PERCENT	FAT POUNDS	LAST TERM CODE	CODE	NUMBER	MILK POUNDS	FAT PERCENT	FAT POUNDS	MILK POUNDS	FAT PERCENT	FAT POUNDS
			YR	MO	DAY	YR	MO	DAY	YR	MO														
		21XYZ1258				80	3	15	2	2	305	1												
		21XYZ1260				80	6	3	2	1	303	1												
		21XYZ1417				81	2	13	3	2	170	2				4								
		21XYZ1842				81	3	23	3	3	305	1				1	R							
		21XYZ1851				81	1	24	3	1	185	2				1	R							
		21XYZ1901				80	3	24	2	2	297	1												
		21XYZ1912				81	2	23	3	1	283	1				7								
		21XYZ1917				80	1	25	2	1	119	1				3								
		21XYZ1941				79	12	6	2	5	133	1				2								
		21XYZ1949				80	8	17	2	8	223	1				1	R							
		21XYZ1953				80	5	21	3	1	305	1												
		21XYZ1987				80	6	23	2	4	296	1				1	R							

Figure 1.--Pertinent data from a Form 1202.

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Dairy Herd Improvement Letter

Vol. 57, No. 3

June 1981

NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

- PARTICIPATION REPORT, JANUARY 1, 1981

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Dairy Herd Improvement Letter

NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM PARTICIPATION REPORT— STATE ACTIVITIES AS OF JANUARY 1, 1981

By H. D. Norman, E. F. Myers, and F. N. Dickinson[1]

Participation in the National Cooperative Dairy Herd Improvement Program (NCDHIP) continues to expand rapidly. As of January 1, 1981, NCDHIP includes 40.2 percent of U.S. dairy cows as compared with 37.9 percent last year. The program now enrolls 4,480,068 cows and 13,534 does.

This report is prepared annually to summarize State activities in many segments of NCDHIP. Information is provided by either the State Extension Dairymen advising on NCDHIP in their respective States or personnel from the 10 dairy records processing centers computing Dairy Herd Improvement Association (DHIA) records for the States.

All information in the report represents State participation as of January 1, 1981, unless otherwise indicated. Puerto Rico and the Virgin Islands are included in the tables under the heading State, making a total of 52 NCDHIP States. Two new tables have been added to report State participation—the DHIR AM-PM with Monitoring Device plan (table 9) and the Verified Identification Program (VIP) (table 20). A Guide to Tables based on highlights is included.

Table 1 shows 50 State DHIA's on January 1, 1981, one more than last year. Only Alaska and Mississippi do not have a State DHIA. Forty-five States were members of National DHIA. The number of testing associations was increased by 41 to 1,066 and the number of testing supervisors by 186 to 2,824.

Table 2 ranks the States according to the percentage of cows enrolled in any NCDHIP plan. The proportion of U.S. dairy cows enrolled in NCDHIP is the highest in history, increasing to 40.2 percent from 37.9 percent last year. Nevada, South Carolina, Arizona, Hawaii, and New Mexico head the list, with 72.6, 67.3, 66.7, 60.6, and 60.2 percent, respectively, of cows enrolled. California ranks highest among the major dairy States, with 59.6 percent of cows on testing plans. Most States showed an increase in participation; 14 States now have over 50 percent of cows enrolled.

Table 3 gives a general summary of participation (numbers of herds and cows) in official and nonofficial NCDHIP plans by State. The dairy cow population in each State as reported by the Statistical Reporting Service, U.S. Department of Agriculture, is presented, and these figures are used as the basis for determining each State's participation in the various plans throughout the remainder of this report. The U.S. dairy cow inventory of 11,135,000 cows includes 266,000 from Puerto Rico and the Virgin Islands. Nearly 4.5 million dairy cows from 62,975 herds were enrolled in NCDHIP. Participation in official plans is 28.7 percent, an increase from 26.8 percent last year; participation in nonofficial plans is 11.5 percent, an increase from 11.1 percent last year. Records from cows enrolled in official plans are used in calculating genetic evaluations for bulls and cows, now nearly 3.2 million records as compared with 3.0 million a year ago.

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Table 4 shows how enrollment in NCDHIP changed during the past year. Out of 52 States, 46 increased cow enrollment, 8 States by more than 10,000 cows. There was an increase in all testing plans of 2,456 herds and 288,199 cows. Seventy-nine percent of the increase in number of herds and 80 percent of the increase in number of cows were reflected in the official plans. The greatest increases in number of herds in all plans came from Pennsylvania, Wisconsin, and Minnesota, and the largest increases in number of cows came from Wisconsin, New York, Minnesota, and Pennsylvania. California showed the largest increase in number of cows enrolled in official plans. Some of this increase is a result of a decrease in the Commercial plan. New York and Iowa showed large increases in both number of herds and cows enrolled in nonofficial plans.

Table 5 contains information on State enrollment of dairy goats in NCDHIP recordkeeping plans. The enrollment of 1,411 herds and 13,534 does is only slightly higher than last year's enrollment. There seems to be a marked slowdown of the rapid increase in dairy goat participation in NCDHIP that had occurred in recent years. Twelve States showed a decrease in both number of herds and does.

Enrollment in Official DHI, the traditional plan, did not increase but rather showed a decrease of 485 herds and 38,029 cows (table 6). This decrease in the presence of an expanding program exemplifies that dairymen are using alternative plans more suitable to their individual needs; still, Official DHI is the plan used by most dairymen participating in NCDHIP and has an enrollment of 32,207 herds and 2,515,715 cows.

Participation in the breed association-sponsored Dairy Herd Improvement Registry (DHIR) plan showed a modest increase of 182 herds and 23,835 cows more than last year's enrollment (table 7). Participation is at an alltime high, with 4,284 herds and 342,590 cows now enrolled in this plan. Largest increases in number of herds were in Wisconsin and New York, but the largest increases in number of cows were in California and Wisconsin.

Tables 8 and 9 show the participation in the two official plans that require a monitoring device to record time of milking. Table 8 shows that enrollment in Official DHI AM-PM increased considerably from 138 herds a year ago to 667 herds in January 1981. The corresponding number of cows increased from 10,334 to 49,014. Much of the participation in this plan is from the Midwestern States and California. Table 9 shows participation in a new plan, Official DHIR AM-PM with Monitoring Device. Most of this plan's participation is from the State of Washington, which accounts for 12 of the 17 herds and 2,678 of the 3,009 cows.

Table 10 shows participation in Official DHI with Alternate AM-PM Component Sampling, the plan with the greatest growth. Herd enrollment increased from 616 to 2,269 and cow enrollment from 78,000 to 276,974. These increases were primarily in the Southeastern United States and at the expense of the Official DHI plan. North Carolina, Puerto Rico, Texas, Alabama, Louisiana, and Mississippi show an increase ranging from 12,840 to 55,501 cows enrolled in Official DHI with Alternate AM-PM Component Sampling; these same 6 States show a decrease ranging from 11,842 to 51,135 cows enrolled in Official DHI (table 6). Therefore, it appears that the Official DHI plan did have many new herds enroll but lost a greater number to the Official DHI with Alternate AM-PM Component Sampling plan. The Official DHI plan, therefore, appeared to have no growth.

Table 11 gives the enrollment in the breed association-sponsored Official DHIR with Alternate AM-PM Component Sampling plan. This plan nearly doubled in size from last year but still enrolls only 10,051 cows in 80 herds.

The owner-sampler plans continue to have an extremely important role in NCDHIP. Table 12 shows State enrollment in three types of owner-sampler plans. All three plans are based on the dairyman's recording of two consecutive milking weights but differ in method of determining fat content. The first plan requires an aliquot milk sample from both milkings for each cow. These samples then are tested for fat content. The other two plans provide no milk component information for individual cows. The second plan uses the breed average fat percentage for each cow and is designated as BAF. The third plan uses the plant test fat percentage and is designated as PTF. These three owner-sampler plans enroll 6.7 percent of the cows in the entire United States and from 10 to 33 percent of the cows in Alaska, Wisconsin, Hawaii, and Michigan.

Growth in another nonofficial plan, Alternate AM-PM (table 13), continued with an increase of 988 herds and 62,128 cows, accounting for 2.8 percent of the cows in the United States. Participation in the plan is particularly strong in New York and Pennsylvania, with 14 and 8 percent of their cows enrolled.

Enrollment in the Commercial plan (table 14) declined by 107 herds and 18,150 cows. This decline was primarily from reduced participation in California and discontinuation of all participation in Ohio. There are still 262 herds participating with 96,937 cows, predominantly from a few western States. This plan enrolls 0.9 percent of U.S. cows.

There are 748 herds and 106,063 cows in the Milk-Only-Records plan (table 15). This represents an increase of 79 herds and 20,614 cows over the previous year. Much of the participation in this plan is in Florida, Georgia, and New York.

Tables 16-18 show enrollment in the Weigh-A-Day-A-Month plan, the Basic Management and Production plan, and Trimonthly testing. Altogether these plans enroll 258 herds and 22,157 cows.

Table 19 shows participation in NCDHIP services, including protein and solids-not-fat (SNF) testing, mastitis screening, forage and pregnancy testing, and one new service, ration balancing. The data reported by the States are more comprehensive and complete this year. On January 1, 1981, there were 3,054 cow herds on protein test and 688 on SNF test. Protein testing is being done for 217,450 cows and SNF testing for 196,381 cows. A milk component besides fat now is included on 5.9 percent of the herds and 9.4 percent of the cows enrolled in NCDHIP. Participation in both protein and SNF testing has increased. California had the greatest number of cows reported for SNF testing, whereas New York shows the greatest number for protein. Protein information is available on nearly all tested cows in Utah and Colorado.

Various methods of mastitis screening are used throughout the country, with a reported participation of 17,404 cow herds and 1,551,210 cows. The development of technology to provide rapid somatic cell counts on individual cows from the same milk sample used in determining component tests has accounted for the rapid growth of this herd management program.

A few States reported on forage testing, pregnancy testing, and ration balancing, but this report reflects only a part of these overall activities.

The grade identification program sponsored by NDHIA, VIP, was undertaken in 1976. Since then until January 1, 1981, 46,681 animals have been certified with VIP certificates. Table 20 shows that 12,821 animals were certified in 1980, 608 more than in 1979.

Table 21 summarizes the trends in official NCDHIP recordkeeping plans since the beginning of NCDHIP in 1906. In 1981, the number and percentage of cows enrolled have set a record high. Average herd size continued to increase to 81 cows. Milk and fat yield of cows on official plans is at an alltime high of 14,960 pounds of milk and 553 pounds of fat. Fat continues at 3.70 percent, its lowest average.

Table 22 summarizes the trends in nonofficial NCDHIP recordkeeping plans since 1956. Numbers of cows and cows per herd and percentage of U.S. cows enrolled again reached a new record high. Milk and fat yield of cows on nonofficial plans is at an alltime high of 14,080 pounds of milk and 529 pounds of fat. Fat decreased at 3.76 percent, its lowest average.

Table 23 is a list of Extension Dairymen who advise on NCDHIP in each State.

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- Types of services for cows and goats — 18
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TABLE 1.--STATE DAIRY HERD IMPROVEMENT ASSOCIATIONS, MEMBERSHIP IN NATIONAL DAIRY HERD IMPROVEMENT ASSOCIATION, INC., ASSOCIATIONS, AND SUPERVISORS IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM, JANUARY 1, 1981

STATE 1/	STATE DHIA	MEMBER OF NDHIA, INC.	ASSOCI-ATIONS	SUPER-VISORS	STATE 1/	STATE DHIA	MEMBER OF NDHIA, INC.	ASSOCI-ATIONS	SUPER-VISORS
			NUMBER	NUMBER				NUMBER	NUMBER
ALABAMA----------	YES	YES	19	20	NEW HAMPSHIRE----	YES	YES	8	12
ALASKA-----------	NO	NO	1	1	NEW JERSEY-------	YES	YES	5	11
ARIZONA----------	YES	YES	1	17	NEW MEXICO-------	YES	YES	4	7
ARKANSAS---------	YES	YES	32	27	NEW YORK --------	YES	YES	48	200
CALIFORNIA-------	YES	YES	28	155	NORTH CAROLINA---	YES	YES	22	48
COLORADO---------	YES	YES	12	44	NORTH DAKOTA-----	YES	YES	21	20
CONNECTICUT------	YES	YES	6	24	OHIO-------------	YES	YES	15	102
DELAWARE---------	YES	YES	1	3	OKLAHOMA---------	YES	YES	18	31
FLORIDA----------	YES	NO	9	17	OREGON-----------	YES	YES	11	31
GEORGIA----------	YES	YES	30	34	PENNSYLVANIA-----	YES	YES	60	212
HAWAII 2/--------	YES	NO	1	1	PUERTO RICO------	YES	YES	1	24
IDAHO------------	YES	YES	27	46	RHODE ISLAND-----	YES	NO	3	3
ILLINOIS---------	YES	YES	44	81	SOUTH CAROLINA---	YES	YES	10	22
INDIANA----------	YES	YES	46	96	SOUTH DAKOTA-----	YES	YES	17	19
IOWA-------------	YES	YES	54	110	TENNESSEE--------	YES	YES	34	50
KANSAS-----------	YES	YES	45	52	TEXAS------------	YES	NO	36	74
KENTUCKY---------	YES	YES	34	61	UTAH-------------	YES	YES	16	24
LOUISIANA--------	YES	YES	13	23	VERMONT----------	YES	YES	22	58
MAINE------------	YES	YES	12	38	VIRGIN ISLANDS---	YES	YES	1	1
MARYLAND---------	YES	YES	11	35	VIRGINIA---------	YES	YES	36	57
MASSACHUSETTS----	YES	YES	7	20	WASHINGTON-------	YES	YES	23	67
MICHIGAN---------	YES	YES	1	89	WEST VIRGINIA----	YES	YES	8	17
MINNESOTA--------	YES	YES	73	209	WISCONSIN--------	YES	YES	28	371
MISSISSIPPI------	NO	NO	22	33	WYOMING----------	YES	NO	8	8
MISSOURI---------	YES	YES	42	69					
MONTANA----------	YES	YES	7	9					
NEBRASKA---------	YES	YES	29	36					
NEVADA-----------	YES	YES	4	5	NATIONAL COOPERATIVE DHI PROGRAM----	50	45	1,066	2,824

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.
2/ DATA FOR JANUARY 1, 1978; NONE REPORTED FOR JANUARY 1, 1981.

TABLE 2.--PERCENTAGE OF COWS IN EACH STATE ENROLLED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM, JANUARY 1, 1981

STATE 1/	PCT	STATE 1/	PCT	STATE 1/	PCT
NEVADA-----------	72.6	COLORADO---------	46.3	MONTANA----------	33.5
SOUTH CAROLINA---	67.3	GEORGIA----------	45.6	IOWA-------------	32.1
ARIZONA----------	66.7	NEW YORK---------	45.2	LOUISIANA--------	30.9
HAWAII-----------	60.6	KANSAS-----------	45.0	TENNESSEE--------	30.4
NEW MEXICO-------	60.2	ALABAMA----------	44.2	FLORIDA----------	30.2
CALIFORNIA-------	59.6	PENNSYLVANIA-----	43.3	NEBRASKA---------	29.5
CONNECTICUT------	57.1	MICHIGAN---------	43.0	MISSISSIPPI------	29.2
NORTH CAROLINA---	55.5	WISCONSIN--------	43.0	OKLAHOMA---------	25.7
UTAH-------------	54.4	VERMONT----------	41.4	TEXAS------------	25.6
VIRGIN ISLANDS---	53.3	NEW JERSEY-------	41.4	MISSOURI---------	24.8
WASHINGTON-------	53.2	WEST VIRGINIA----	40.3	WYOMING----------	23.8
VIRGINIA---------	52.9	ALASKA-----------	38.1	SOUTH DAKOTA-----	20.7
NEW HAMPSHIRE----	52.0	OHIO-------------	37.4	ARKANSAS---------	20.2
OREGON-----------	51.8	IDAHO------------	36.2	KENTUCKY---------	17.4
MAINE------------	49.4	MINNESOTA--------	35.4	NORTH DAKOTA-----	13.5
DELAWARE---------	48.1	RHODE ISLAND-----	35.0	PUERTO RICO------	12.3
MARYLAND---------	48.0	ILLINOIS---------	34.9	NCDHIP TOTAL-----	40.2
MASSACHUSETTS----	46.8	INDIANA----------	34.0		

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

TABLE 3.—ENROLLMENT BY CATEGORY OF PLAN AND STATE FOR DAIRY COWS, JANUARY 1, 1981

STATE 1/	ALL MILK COWS 2/	OFFICIAL PLANS		COWS IN OFFICIAL PLANS	NONOFFICIAL PLANS		COWS IN NONOFFICIAL PLANS	ALL TESTING PLANS		COWS IN ALL PLANS
		HERDS	COWS		HERDS	COWS		HERDS	COWS	
	THOUSANDS	NUMBER	NUMBER	PCT	NUMBER	NUMBER	PCT	NUMBER	NUMBER	PCT
ALABAMA	64	218	26,861	42.0	14	1,415	2.2	232	28,276	44.2
ALASKA	1	1	59	5.4	5	360	32.7	6	419	38.1
ARIZONA	75	121	48,900	65.2	5	1,113	1.5	126	50,013	66.7
ARKANSAS	80	190	11,410	14.3	50	4,732	5.9	240	16,142	20.2
CALIFORNIA	909	1,258	459,579	50.6	186	82,363	9.1	1,444	541,942	59.6
COLORADO	71	239	29,062	40.9	24	3,827	5.4	263	32,889	46.3
CONNECTICUT	48	315	23,728	49.4	46	3,697	7.7	361	27,425	57.1
DELAWARE	10	51	4,390	43.9	4	417	4.2	55	4,807	48.1
FLORIDA	187	65	18,188	9.7	107	38,214	20.4	172	56,402	30.2
GEORGIA	130	332	40,507	31.2	111	18,724	14.4	443	59,231	45.6
HAWAII	13	10	5,914	45.5	4	1,966	15.1	14	7,880	60.6
IDAHO	159	511	50,593	31.8	52	6,938	4.4	563	57,531	36.2
ILLINOIS	230	1,203	69,174	30.1	229	11,019	4.8	1,432	80,193	34.9
INDIANA	207	960	57,226	27.6	253	13,238	6.4	1,213	70,464	34.0
IOWA	378	1,513	74,965	19.8	1,026	46,338	12.3	2,539	121,303	32.1
KANSAS	123	753	50,182	40.8	104	5,138	4.2	857	55,320	45.0
KENTUCKY	243	555	35,694	14.7	75	6,603	2.7	630	42,297	17.4
LOUISIANA	112	309	30,749	27.5	45	3,841	3.4	354	34,590	30.9
MAINE	55	430	23,566	42.8	50	3,630	6.6	480	27,196	49.4
MARYLAND	124	650	55,990	45.2	50	3,518	2.8	700	59,508	48.0
MASSACHUSETTS	44	336	19,348	44.0	23	1,244	2.8	359	20,592	46.8
MICHIGAN	390	1,527	116,413	29.8	843	51,405	13.2	2,370	167,818	43.0
MINNESOTA	880	4,233	214,802	24.4	2,379	96,975	11.0	6,612	311,777	35.4
MISSISSIPPI	97	283	26,041	26.8	25	2,252	2.3	308	28,293	29.2
MISSOURI	260	828	55,484	21.3	174	9,057	3.5	1,002	64,541	24.8
MONTANA	29	108	9,337	32.2	3	366	1.3	111	9,703	33.5
NEBRASKA	121	479	32,254	26.7	55	3,490	2.9	534	35,744	29.5
NEVADA	15	41	10,791	71.9	1	92	0.6	42	10,883	72.6
NEW HAMPSHIRE	30	223	13,323	44.4	45	2,285	7.6	268	15,608	52.0
NEW JERSEY	41	199	14,730	35.9	34	2,226	5.4	233	16,956	41.4
NEW MEXICO	49	54	28,068	57.3	8	1,443	2.9	62	29,511	60.2
NEW YORK	915	3,376	226,856	24.8	3,142	186,774	20.4	6,518	413,630	45.2
NORTH CAROLINA	135	653	69,794	51.7	59	5,151	3.8	712	74,945	55.5
NORTH DAKOTA	93	179	10,613	11.4	31	1,979	2.1	210	12,592	13.5
OHIO	375	1,760	108,731	29.0	676	31,343	8.4	2,436	140,074	37.4
OKLAHOMA	112	373	27,252	24.3	26	1,560	1.4	399	28,812	25.7
OREGON	96	396	44,823	46.7	52	4,953	5.2	448	49,776	51.8
PENNSYLVANIA	718	3,824	217,735	30.3	1,940	93,109	13.0	5,764	310,844	43.3
PUERTO RICO	265	172	32,582	12.3	0	0	0.0	172	32,582	12.3
RHODE ISLAND	4	27	1,400	35.0	0	0	0.0	27	1,400	35.0
SOUTH CAROLINA	48	222	30,505	63.6	16	1,780	3.7	238	32,285	67.3
SOUTH DAKOTA	155	248	14,963	9.7	335	17,195	11.1	583	32,158	20.7
TENNESSEE	215	690	61,935	28.8	38	3,448	1.6	728	65,383	30.4
TEXAS	320	595	72,704	22.7	61	9,281	2.9	656	81,985	25.6
UTAH	77	345	38,470	50.0	24	3,392	4.4	369	41,862	54.4
VERMONT	190	1,062	60,892	32.0	327	17,813	9.4	1,389	78,705	41.4
VIRGIN ISLANDS	1	3	328	32.8	1	205	20.5	4	533	53.3
VIRGINIA	173	943	89,264	51.6	37	2,185	1.3	980	91,449	52.9
WASHINGTON	200	694	94,786	47.4	79	11,579	5.8	773	106,365	53.2
WEST VIRGINIA	36	184	14,220	39.5	8	281	0.8	192	14,501	40.3
WISCONSIN	1,820	5,754	319,692	17.6	10,563	462,387	25.4	16,317	782,079	43.0
WYOMING	12	29	2,480	20.7	6	374	3.1	35	2,854	23.8
NCDHIP TOTAL	11,135	39,524	3,197,353	28.7	23,451	1,282,715	11.5	62,975	4,480,068	40.2

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981 , EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 4.--CHANGES IN ENROLLMENT BY CATEGORY OF PLAN AND STATE FOR DAIRY COWS, 1980-81

STATE 1/	OFFICIAL PLANS		NONOFFICIAL PLANS		ALL TESTING PLANS	
	CHANGE IN HERDS	CHANGE IN COWS	CHANGE IN HERDS	CHANGE IN COWS	CHANGE IN HERDS	CHANGE IN COWS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ALABAMA----------	2	241	-4	-456	-2	-215
ALASKA-----------	0	4	-2	-66	-2	-62
ARIZONA----------	3	2,719	-2	-853	1	1,866
ARKANSAS---------	28	1,890	-4	-176	24	1,714
CALIFORNIA-------	53	34,513	-60	-14,983	-7	19,530
COLORADO---------	13	2,357	-5	-1,689	8	668
CONNECTICUT------	6	105	13	950	19	1,055
DELAWARE---------	-3	-98	-2	-108	-5	-206
FLORIDA----------	8	4,454	3	1,539	11	5,993
GEORGIA----------	32	3,909	7	964	39	4,873
HAWAII-----------	0	51	0	-41	0	10
IDAHO------------	45	7,984	9	1,563	54	9,547
ILLINOIS---------	41	4,752	-43	-1,592	-2	3,160
INDIANA----------	51	4,366	-18	-357	33	4,009
IOWA-------------	-97	-2,241	287	15,427	190	13,186
KANSAS-----------	27	2,788	-9	-441	18	2,347
KENTUCKY---------	45	3,651	-7	-117	38	3,534
LOUISIANA--------	-9	-1,173	5	237	-4	-936
MAINE------------	29	1,307	1	12	30	1,319
MARYLAND---------	26	3,765	-5	166	21	3,931
MASSACHUSETTS----	16	945	0	-124	16	821
MICHIGAN---------	55	6,309	36	4,365	91	10,674
MINNESOTA--------	242	18,456	108	7,779	350	26,235
MISSISSIPPI------	20	1,118	2	367	22	1,485
MISSOURI---------	53	5,664	11	591	64	6,255
MONTANA----------	25	2,778	-5	-918	20	1,860
NEBRASKA---------	39	2,396	2	188	41	2,584
NEVADA-----------	3	1,494	-2	-9	1	1,485
NEW HAMPSHIRE----	-3	704	4	309	1	1,013
NEW JERSEY-------	-16	-796	25	1,710	9	914
NEW MEXICO-------	8	2,548	4	804	12	3,352
NEW YORK---------	86	12,953	169	24,540	255	37,493
NORTH CAROLINA---	20	3,754	0	952	20	4,706
NORTH DAKOTA-----	20	1,474	5	264	25	1,738
OHIO-------------	97	8,649	-77	-1,789	20	6,860
OKLAHOMA---------	26	1,371	-3	-499	23	872
OREGON-----------	3	2,519	3	113	6	2,632
PENNSYLVANIA-----	264	18,594	118	7,121	382	25,715
PUERTO RICO------	41	7,647	0	0	41	7,647
RHODE ISLAND-----	-1	5	0	0	-1	5
SOUTH CAROLINA---	-4	-262	-2	-361	-6	-623
SOUTH DAKOTA-----	16	1,664	12	1,769	28	3,433
TENNESSEE--------	54	5,768	-2	-369	52	5,399
TEXAS------------	58	7,931	16	2,307	74	10,238
UTAH-------------	1	3,250	4	941	5	4,191
VERMONT----------	117	7,161	-46	-2,523	71	4,638
VIRGIN ISLANDS---	0	-34	1	205	1	171
VIRGINIA---------	13	2,739	-2	-217	11	2,522
WASHINGTON-------	1	1,824	-13	-1,633	-12	191
WEST VIRGINIA----	6	492	1	15	7	507
WISCONSIN--------	396	26,959	-29	11,286	367	38,245
WYOMING----------	-8	-623	4	241	-4	-362
NCDHIP TOTAL-----	1,948	230,795	508	57,404	2,456	288,199

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

TABLE 5.--ENROLLMENT BY PLAN AND STATE FOR DAIRY GOATS, JANUARY 1, 1981

STATE 1/	OFFICIAL DAIRY HERD IMPROVEMENT		DAIRY HERD IMPROVEMENT REGISTRY		NONOFFICIAL PLANS		ALL TESTING PLANS		CHANGE IN HERDS FROM 1/1/80	CHANGE IN DOES FROM 1/1/80
	HERDS	DOES	HERDS	DOES	HERDS	DOES	HERDS	DOES		
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ALABAMA----------	0	0	7	40	0	0	7	40	0	2
ARIZONA----------	3	12	52	310	2	17	57	339	0	-7
ARKANSAS---------	7	72	21	311	0	0	28	383	6	56
CALIFORNIA-------	22	319	286	3,588	4	79	312	3,986	-27	48
COLORADO---------	6	16	45	288	0	0	51	304	10	75
CONNECTICUT------	17	141	0	0	0	0	17	141	-6	-33
DELAWARE---------	4	15	0	0	0	0	4	15	1	-1
FLORIDA----------	0	0	20	226	0	0	20	226	5	51
GEORGIA----------	0	0	17	72	0	0	17	72	1	-2
IDAHO------------	4	18	4	76	0	0	8	94	-6	11
ILLINOIS---------	2	29	10	99	1	3	13	131	1	5
INDIANA----------	0	0	12	90	0	0	12	90	-3	-23
IOWA-------------	8	70	6	71	3	11	17	152	-5	-173
KANSAS-----------	14	55	6	49	0	0	20	104	10	45
KENTUCKY---------	0	0	1	1	0	0	1	1	1	1
LOUISIANA--------	0	0	6	33	0	0	6	33	3	16
MAINE------------	47	397	0	0	0	0	47	357	6	96
MARYLAND---------	0	0	11	197	0	0	11	197	-1	-29
MASSACHUSETTS----	22	139	0	0	0	0	22	139	-11	-38
MICHIGAN---------	9	139	21	100	0	0	30	239	15	66
MINNESOTA--------	2	13	14	147	2	13	18	173	1	-11
MISSOURI---------	13	143	14	235	1	28	28	406	3	56
MONTANA----------	9	30	0	0	0	0	9	30	-11	-114
NEBRASKA---------	2	4	1	4	1	5	4	13	2	7
NEVADA-----------	2	7	11	87	0	0	13	94	-9	-35
NEW HAMPSHIRE----	21	141	0	0	0	0	21	141	0	31
NEW JERSEY-------	15	257	0	0	0	0	15	257	-4	-10
NEW MEXICO-------	1	7	16	111	0	0	17	118	2	1
NEW YORK---------	68	482	0	0	2	13	70	495	2	19
NORTH CAROLINA---	0	0	13	115	0	0	13	115	0	9
NORTH DAKOTA-----	0	0	1	9	0	0	1	9	1	9
OHIO-------------	3	39	54	421	1	24	58	484	1	127
OKLAHOMA---------	8	80	18	262	0	0	26	342	-7	-19
OREGON-----------	4	44	171	1,225	0	0	175	1,269	20	44
PENNSYLVANIA-----	1	12	13	183	0	0	14	195	-2	-40
PUERTO RICO------	1	41	0	0	0	0	1	41	1	41
RHODE ISLAND-----	7	78	0	0	0	0	7	78	0	-9
SOUTH CAROLINA---	0	0	3	42	0	0	3	42	0	10
TENNESSEE--------	0	0	19	112	0	0	19	112	12	41
TEXAS------------	0	0	39	391	0	0	39	391	11	49
UTAH-------------	0	0	0	0	3	16	3	16	1	-36
VERMONT----------	12	177	0	0	0	0	12	177	5	61
VIRGINIA---------	0	0	21	157	0	0	21	157	-6	-41
WASHINGTON-------	2	9	53	457	2	12	57	478	-13	-102
WEST VIRGINIA----	6	39	0	0	0	0	6	39	4	21
WISCONSIN--------	10	160	35	465	16	154	61	779	0	-142
NCDHIP TOTAL-----	352	3,185	1,021	9,974	38	375	1,411	13,534	14	133

1/ INCLUDES PUERTO RICO.

TABLE 6.--ENROLLMENT IN THE OFFICIAL DAIRY HERD IMPROVEMENT PLAN, JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	46	-142	5,644	-17,298	64	8.8
ALASKA----------	0	0	0	0	1	0.0
ARIZONA----------	90	2	39,515	1,311	75	52.7
ARKANSAS---------	162	28	9,903	1,765	80	12.4
CALIFORNIA-------	1,057	31	394,458	20,294	909	43.4
COLORADO---------	188	12	23,111	1,366	71	32.6
CONNECTICUT------	266	2	20,878	-84	48	43.5
DELAWARE---------	41	-2	3,788	-3	10	37.9
FLORIDA----------	7	-4	3,200	1,252	187	1.7
GEORGIA----------	161	-52	17,656	-6,671	130	13.6
HAWAII-----------	10	0	5,914	51	13	45.5
IDAHO------------	478	45	47,664	7,870	159	30.0
ILLINOIS---------	867	-120	48,536	-5,391	230	21.1
INDIANA----------	786	54	46,692	4,147	207	22.6
IOWA-------------	1,273	-146	63,180	-5,156	378	16.7
KANSAS-----------	671	26	44,268	2,688	123	36.0
KENTUCKY---------	484	32	30,898	2,532	243	12.7
LOUISIANA--------	95	-178	9,135	-18,137	112	8.2
MAINE------------	369	22	20,227	1,019	55	36.8
MARYLAND---------	587	17	48,303	2,777	124	39.0
MASSACHUSETTS----	288	11	16,397	824	44	37.3
MICHIGAN---------	1,396	42	106,923	4,962	390	27.4
MINNESOTA--------	3,677	1	184,926	4,911	880	21.0
MISSISSIPPI------	21	-136	2,178	-11,842	97	2.2
MISSOURI---------	653	12	42,274	1,582	260	16.3
MONTANA----------	90	20	7,434	1,844	29	25.6
NEBRASKA---------	434	38	28,550	2,008	121	23.6
NEVADA-----------	29	-3	9,094	484	15	60.6
NEW HAMPSHIRE----	191	-2	10,877	424	30	36.3
NEW JERSEY-------	167	-16	12,263	-979	41	29.9
NEW MEXICO-------	35	-3	19,159	-2,857	49	39.1
NEW YORK---------	3,022	50	205,135	10,745	915	22.4
NORTH CAROLINA---	93	-500	10,572	-51,135	135	7.8
NORTH DAKOTA-----	152	7	8,968	551	93	9.6
OHIO-------------	1,385	29	85,755	3,600	375	22.9
OKLAHOMA---------	287	-4	21,093	-863	112	18.8
OREGON-----------	318	-5	37,908	1,451	96	39.5
PENNSYLVANIA-----	3,651	242	206,606	16,705	718	28.8
PUERTO RICO------	0	-131	0	-24,935	265	0.0
RHODE ISLAND-----	20	-2	1,069	-46	4	26.7
SOUTH CAROLINA---	49	-24	6,601	-1,894	48	13.8
SOUTH DAKOTA-----	163	-28	10,547	-798	155	6.8
TENNESSEE--------	632	56	56,370	5,930	215	26.2
TEXAS------------	174	-116	21,616	-13,623	320	6.8
UTAH-------------	315	-2	32,668	1,221	77	42.4
VERMONT----------	930	105	54,162	6,610	190	28.5
VIRGIN ISLANDS---	0	0	0	0	1	0.0
VIRGINIA---------	783	-66	70,657	-7,517	173	40.8
WASHINGTON-------	571	-16	77,503	-2,741	200	38.8
WEST VIRGINIA----	168	8	12,651	585	36	35.1
WISCONSIN--------	4,851	327	270,711	22,839	1,820	14.9
WYOMING----------	24	-6	2,078	-407	12	17.3
NCDHIP TOTAL-----	32,207	-485	2,515,715	-38,029	11,135	22.6

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 7.--ENROLLMENT IN THE DAIRY HERD IMPROVEMENT REGISTRY PLAN, JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	7	-5	605	-783	64	0.9
ALASKA-----------	1	0	59	4	1	5.4
ARIZONA----------	31	1	9,385	1,408	75	12.5
ARKANSAS---------	28	0	1,507	125	80	1.9
CALIFORNIA-------	193	15	58,465	7,995	909	6.4
COLORADO---------	50	0	5,346	386	71	7.5
CONNECTICOT------	49	4	2,850	189	48	5.9
DELAWARE---------	10	-1	602	-95	10	6.0
FLORIDA----------	1	-1	55	-324	187	0.0
GEORGIA----------	31	8	4,842	846	130	3.7
HAWAII-----------	0	0	0	0	13	0.0
IDAHO------------	33	0	2,929	114	159	1.8
ILLINOIS---------	175	0	10,706	211	230	4.7
INDIANA----------	145	-11	8,153	-198	207	3.9
IOWA-------------	186	23	8,747	1,286	378	2.3
KANSAS-----------	73	1	4,637	187	123	3.8
KENTUCKY---------	64	7	4,208	597	243	1.7
LOUISIANA--------	14	-5	1,461	-746	112	1.3
MAINE------------	60	6	3,113	62	55	5.7
MARYLAND---------	52	0	6,655	385	124	5.4
MASSACHUSETTS----	48	5	2,951	121	44	6.7
MICHIGAN---------	130	12	9,402	1,259	390	2.4
MINNESOTA--------	266	25	13,526	1,587	880	1.5
MISSISSIPPI------	9	-4	868	-420	97	0.9
MISSOURI---------	81	-5	5,180	308	260	2.0
MONTANA----------	16	3	1,096	127	29	3.8
NEBRASKA---------	43	-1	3,354	38	121	2.8
NEVADA-----------	11	5	1,432	745	15	9.5
NEW HAMPSHIRE----	32	-1	2,446	280	30	8.2
NEW JERSEY-------	32	0	2,467	183	41	6.0
NEW MEXICO-------	8	0	3,659	155	49	7.5
NEW YORK---------	354	36	21,721	2,208	915	2.4
NORTH CAROLINA---	24	-14	2,647	-1,557	135	2.0
NORTH DAKOTA-----	12	0	652	41	93	0.7
OHIO-------------	301	7	17,405	982	375	4.6
OKLAHOMA---------	55	-1	4,080	155	112	3.6
OREGON-----------	76	8	6,577	1,042	96	6.9
PENNSYLVANIA-----	156	7	9,714	662	718	1.4
PUERTO RICO------	0	0	0	0	265	0.0
RHODE ISLAND-----	7	1	331	51	4	8.3
SOUTH CAROLINA---	21	-9	2,666	-863	48	5.6
SOUTH DAKOTA-----	21	-5	932	-296	155	0.6
TENNESSEE--------	58	-2	5,565	-162	215	2.6
TEXAS------------	61	-8	6,767	-1,116	320	2.1
UTAH-------------	27	0	4,423	650	77	5.7
VERMONT----------	132	12	6,730	551	190	3.5
VIRGIN ISLANDS---	0	0	0	0	1	0.0
VIRGINIA---------	68	1	7,580	529	173	4.4
WASHINGTON-------	108	3	13,122	1,115	200	6.6
WEST VIRGINIA----	16	-2	1,569	-93	36	4.4
WISCONSIN--------	903	69	48,981	4,120	1,820	2.7
WYOMING----------	5	-2	402	-216	12	3.3
NCDHIP TOTAL-----	4,284	182	342,590	23,835	11,135	3.1

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 8.--ENROLLMENT IN THE OFFICIAL DHI AM-PM WITH MONITORING DEVICE PLAN, JANUARY 1, 1981

STATE	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
CALIFORNIA-------	8	7	6,636	6,224	909	0.7
COLORADO---------	1	1	605	605	71	0.9
ILLINOIS---------	137	137	8,666	8,666	230	3.8
IOWA-------------	44	16	2,440	1,031	378	0.6
KANSAS-----------	1	1	66	66	123	0.1
LOUISIANA--------	3	1	410	125	112	0.4
MARYLAND---------	11	9	1,032	603	124	0.8
MICHIGAN---------	1	1	88	88	390	0.0
MINNESOTA--------	284	215	15,623	11,804	880	1.8
MISSOURI---------	4	4	302	302	260	0.1
MONTANA----------	2	2	807	807	29	2.8
NEBRASKA---------	2	2	350	350	121	0.3
NEVADA-----------	1	1	265	265	15	1.8
NORTH DAKOTA-----	10	8	718	607	93	0.8
OHIO-------------	73	60	5,511	4,007	375	1.5
OKLAHOMA---------	4	4	273	273	112	0.2
OREGON-----------	1	-1	309	-3	96	0.3
PENNSYLVANIA-----	17	15	1,415	1,227	718	0.2
SOUTH DAKOTA-----	62	47	3,416	2,690	155	2.2
TEXAS------------	1	0	82	-346	320	0.0
WASHINGTON-------	0	-1	0	-711	200	0.0
NCDHIP TOTAL-----	667	529	49,014	38,680	11,135	0.4

1/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 9.--ENROLLMENT IN THE OFFICIAL DHIR AM-PM WITH MONITORING DEVICE PLAN, JANUARY 1, 1981

STATE	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
MAINE------------	1	1	226	226	55	0.4
MINNESOTA--------	1	1	8	8	880	0.0
OREGON-----------	1	1	29	29	96	0.0
SOUTH DAKOTA-----	2	2	68	68	155	0.0
WASHINGTON-------	12	12	2,678	2,678	200	1.3
NCDHIP TOTAL-----	17	17	3,009	3,009	12	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 10.--ENROLLMENT IN THE OFFICIAL DHI WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	156	144	19,487	18,097	64	30.4
FLORIDA----------	52	11	13,533	3,185	187	7.2
GEORGIA----------	137	73	17,643	9,368	130	13.6
ILLINOIS---------	18	18	903	903	230	0.4
INDIANA----------	29	8	2,381	417	207	1.2
IOWA-------------	8	8	426	426	378	0.1
KANSAS-----------	8	-1	1,211	-153	123	1.0
KENTUCKY---------	7	6	588	522	243	0.2
LOUISIANA--------	189	165	18,943	16,785	112	16.9
MINNESOTA--------	5	0	719	146	880	0.1
MISSISSIPPI------	241	154	21,905	12,840	97	22.6
MISSOURI---------	89	41	7,647	3,391	260	2.9
NEW MEXICO-------	11	11	5,250	5,250	49	10.7
NORTH CAROLINA---	527	525	55,630	55,501	135	41.2
NORTH DAKOTA-----	5	5	275	275	93	0.3
OHIO-------------	1	1	60	60	375	0.0
OKLAHOMA---------	27	27	1,806	1,806	112	1.6
PUERTO RICO------	172	172	32,582	32,582	265	12.3
SOUTH CAROLINA---	129	16	18,024	1,762	48	37.5
TEXAS------------	357	184	43,744	23,120	320	13.7
UTAH-------------	3	3	1,379	1,379	77	1.8
VIRGIN ISLANDS---	3	0	328	-34	1	32.8
VIRGINIA---------	92	79	11,027	9,863	173	6.4
WASHINGTON-------	3	3	1,483	1,483	200	0.7
NCDHIP TOTAL-----	2,269	1,653	276,974	198,974	11,135	2.5

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 11.--ENROLLMENT IN THE OFFICIAL DHIR WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1981

STATE	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	9	5	1,125	225	64	4.8
FLORIDA----------	5	2	1,400	341	187	0.7
GEORGIA----------	3	3	366	366	130	5.3
ILLINOIS---------	6	6	363	363	230	0.8
IOWA-------------	2	2	172	172	378	0.5
LOUISIANA--------	8	8	800	800	112	3.4
MISSISSIPPI------	12	6	1,090	540	97	5.1
MISSOURI---------	1	1	81	81	260	1.9
NORTH CAROLINA---	9	9	945	945	135	4.8
SOUTH CAROLINA---	23	13	3,214	733	48	20.9
TEXAS------------	2	-2	495	-104	320	1.7
VIRGINIA---------	0	-1	0	-136	173	5.8
NCDHIP TOTAL-----	80	52	10,051	4,326	11,135	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 12.--ENROLLMENT IN THE OWNER-SAMPLER PLAN, JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	3	-3	179	-375	64	0.3
ALABAMA (BAF)	1	0	35	3	64	0.1
ALABAMA (PTF)	5	1	566	123	64	0.9
ALASKA	5	-2	360	-66	1	32.7
ARKANSAS	46	-5	4,318	-373	80	5.4
CALIFORNIA	24	-9	3,231	-1,423	909	0.4
COLORADO	4	-3	234	-638	71	0.3
CONNECTICUT	20	1	591	12	48	1.2
FLORIDA	1	0	72	31	187	0.0
GEORGIA	9	4	459	196	130	0.4
GEORGIA (BAF)	4	0	468	10	130	0.4
HAWAII	2	0	1,548	-47	13	11.9
IDAHO	43	6	4,503	337	159	2.8
ILLINOIS	150	-24	6,737	-704	230	2.9
INDIANA	126	-5	5,823	152	207	2.8
IOWA	578	-60	24,060	-1,434	378	6.4
KANSAS	97	-9	4,794	-447	123	3.9
KENTUCKY	21	5	1,524	633	243	0.6
KENTUCKY (BAF)	3	0	595	54	243	0.2
KENTUCKY (PTF)	34	-3	2,840	-137	243	1.2
LOUISIANA	0	-2	0	-141	112	0.0
MAINE	27	-1	877	-123	55	1.6
MARYLAND	39	1	2,207	399	124	1.8
MASSACHUSETTS	19	2	730	105	44	1.7
MICHIGAN	711	26	38,581	2,432	390	9.9
MINNESOTA	1,971	5	77,763	2,839	880	8.8
MISSISSIPPI	4	1	464	201	97	0.5
MISSISSIPPI (BAF)	0	-1	0	-85	97	0.0
MISSOURI	165	4	8,212	276	260	3.2
MONTANA	3	-5	366	-918	29	1.3
NEBRASKA	39	-8	2,660	-291	121	2.2
NEVADA	0	-2	0	-10	15	0.0
NEW HAMPSHIRE	33	3	1,435	175	30	4.8
NEW JERSEY	7	0	239	-108	41	0.6
NEW MEXICO	4	1	622	164	49	1.3
NEW YORK	866	-63	41,702	-2,551	915	4.6
NORTH CAROLINA	18	-4	1,137	-148	135	0.8
NORTH CAROLINA (BAF)	1	0	69	11	135	0.1
NORTH CAROLINA (PTF)	1	1	35	35	135	0.0
NORTH DAKOTA	17	2	1,280	190	93	1.4
OHIO	660	-28	30,250	1,860	375	8.1
OKLAHOMA	17	0	830	2	112	0.7
OREGON	25	1	1,569	32	96	1.6
PENNSYLVANIA	761	35	35,351	5,881	718	4.9
SOUTH CAROLINA	2	1	148	41	48	0.3
SOUTH CAROLINA (BAF)	1	0	299	-31	48	0.6
SOUTH CAROLINA (PTF)	0	-1	0	-332	48	0.0
SOUTH DAKOTA	245	-24	11,825	-342	155	7.6
TENNESSEE	3	1	237	22	215	0.1
TEXAS	24	8	2,900	1,502	320	0.9
TEXAS (BAF)	1	0	114	-134	320	0.0
TEXAS (PTF)	8	1	1,831	228	320	0.6
UTAH	9	-3	665	-291	77	0.9
VERMONT	260	-36	13,095	-1,583	190	6.9
VIRGINIA	28	-3	1,484	-43	173	0.9
VIRGINIA (BAF)	3	-1	175	-122	173	0.1
VIRGINIA (PTF)	5	1	467	-111	173	0.3
WASHINGTON	37	-8	2,230	-958	200	1.1
WEST VIRGINIA	7	0	251	-15	36	0.7
WISCONSIN	9,397	-148	399,742	-6,757	1,820	22.0
WYOMING	2	1	145	66	12	1.2
NCDHIP TOTAL	16,596	-349	744,964	-2,726	11,135	6.7

1/ (BAF) = BREED AVERAGE FAT; (PTF) = PLANT TEST FAT.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 13.--ENROLLMENT IN THE ALTERNATE AM-PM PLAN, JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
CONNECTICUT------	16	14	1,699	1,532	48	3.5
DELAWARE---------	4	-2	417	-108	10	4.2
FLORIDA----------	0	-9	0	-4,339	187	0.0
FLORIDA----------(OS)	6	6	2,569	2,569	187	1.4
IDAHO------------	3	0	614	3	159	0.4
IDAHO------------(OS)	4	3	279	229	159	0.2
ILLINOIS---------(OS)	30	12	1,442	643	230	0.6
INDIANA----------	56	-4	3,222	-175	207	1.6
INDIANA----------(OS)	7	-1	445	-63	207	0.2
IOWA-------------	303	303	14,811	14,811	378	3.9
IOWA-------------(OS)	134	42	6,341	1,763	378	1.7
KENTUCKY---------(OS)	1	0	170	-3	243	0.1
LOUISIANA--------(OS)	5	5	415	415	112	0.4
MAINE------------	3	0	199	0	55	0.4
MAINE------------(OS)	2	1	95	54	55	0.2
MICHIGAN---------	21	5	2,371	1,134	390	0.6
MICHIGAN---------(OS)	3	-7	189	-764	390	0.0
MINNESOTA--------(OS)	402	102	18,342	4,902	880	2.1
MISSOURI---------(OS)	7	7	318	318	260	0.1
NEBRASKA---------(OS)	16	14	830	704	121	0.7
NEW JERSEY-------	22	22	1,366	1,366	41	3.3
NEW YORK---------	1,886	200	118,476	15,447	915	12.9
NEW YORK---------(OS)	214	42	11,288	2,390	915	1.2
OHIO-------------(OS)	10	5	671	400	375	0.2
OKLAHOMA---------(OS)	2	1	96	-60	112	0.1
OREGON-----------	2	1	364	342	96	0.4
OREGON-----------(OS)	1	-1	44	-653	96	0.0
PENNSYLVANIA-----	987	62	53,347	4,256	718	7.4
PENNSYLVANIA-----(OS)	189	18	4,167	-3,240	718	0.6
SOUTH DAKOTA-----(OS)	52	36	2,947	2,063	155	1.9
TEXAS------------(OS)	2	0	459	-245	320	0.1
VERMONT----------	55	-1	3,688	-299	190	1.9
VERMONT----------(OS)	6	-3	400	-182	190	0.2
WASHINGTON-------(OS)	1	0	136	13	200	0.1
WISCONSIN--------	0	-1,020	0	-43,452	1,820	0.0
WISCONSIN--------(OS)	1,135	1,135	60,357	60,357	1,820	3.3
NCDHIP TOTAL-----	5,587	988	312,594	62,128	11,135	2.8

1/ (OS) = OWNER SAMPLER.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 14.--ENROLLMENT IN THE COMMERCIAL PLAN, JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARIZONA----------	1	-1	143	-146	75	0.2
CALIFORNIA-------	161	-52	78,467	-14,225	909	8.6
COLORADO---------	17	-1	3,324	-952	71	4.7
MARYLAND---------	6	2	839	287	124	0.7
MARYLAND---------(AP)	0	-7	0	-661	124	0.0
NEW MEXICO-------	4	3	821	640	49	1.7
OHIO-------------	0	-1	0	-102	375	0.0
OHIO-------------(AP)	0	-54	0	-4,074	375	0.0
OREGON-----------	24	3	2,976	434	96	3.1
UTAH-------------	11	4	2,064	683	77	2.7
WASHINGTON-------	38	6	8,303	1,158	200	4.2
WASHINGTON-------(AP)	0	-9	0	-1,192	200	0.0
NCDHIP TOTAL-----	262	-107	96,937	-18,150	11,135	0.9

1/ (AP) = AM-PM.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 15.--ENROLLMENT IN THE MILK-ONLY-RECORDS PLAN, JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA (OS)	2	0	398	-12	64	0.6
ARKANSAS	4	1	414	197	80	0.5
CONNECTICUT	3	0	692	21	48	1.4
CONNECTICUT (OS)	7	-2	715	-615	48	1.5
FLORIDA	87	2	29,290	1,986	187	15.7
FLORIDA (OS)	12	3	5,959	968	187	3.2
GEORGIA	60	5	10,786	554	130	8.3
GEORGIA (OS)	38	-2	6,971	204	130	5.4
IDAHO	1	-1	368	-180	159	0.2
ILLINOIS	49	49	2,840	2,840	230	1.2
INDIANA	2	1	358	158	207	0.2
INDIANA (OS)	2	-2	680	-168	207	0.3
IOWA	11	2	1,126	287	378	0.3
KANSAS	7	0	344	6	123	0.3
KENTUCKY	1	0	85	-4	243	0.0
KENTUCKY (OS)	1	-1	103	-43	243	0.0
LOUISIANA (OS)	1	1	97	97	112	0.1
MAINE	1	-1	488	-74	55	0.9
MAINE (OS)	13	1	1,323	107	55	2.4
MAINE (AP)	3	0	593	-7	55	1.1
MAINE (S-AP)	1	1	55	55	55	0.1
MASSACHUSETTS	1	-1	190	-85	44	0.4
MASSACHUSETTS (OS)	3	-1	324	-144	44	0.7
MICHIGAN	84	12	8,853	1,377	390	2.3
MINNESOTA	6	1	870	38	880	0.1
MISSOURI	2	0	527	-3	260	0.2
NEW HAMPSHIRE	1	0	116	3	30	0.4
NEW HAMPSHIRE (OS)	5	1	561	127	30	1.9
NEW JERSEY	1	1	179	179	41	0.4
NEW JERSEY (OS)	3	1	284	115	41	0.7
NEW JERSEY (S-AP)	1	1	158	158	41	0.4
NEW YORK	1	-1	59	-71	915	0.0
NEW YORK (OS)	111	-17	9,566	8,405	915	1.0
NEW YORK (AP)	47	4	3,425	251	915	0.4
NEW YORK (S-AP)	17	4	2,258	669	915	0.2
NORTH CAROLINA	17	6	1,873	440	135	1.4
NORTH CAROLINA (OS)	15	4	1,416	851	135	1.0
NORTH DAKOTA	3	1	172	60	93	0.2
OKLAHOMA	7	-4	634	-441	112	0.6
OREGON	0	-1	0	-42	96	0.0
PENNSYLVANIA	3	3	224	224	718	0.0
SOUTH CAROLINA	7	-1	868	49	48	1.8
SOUTH CAROLINA (OS)	4	1	327	102	48	0.7
SOUTH DAKOTA	38	0	2,423	48	155	1.6
TEXAS	11	6	1,339	418	320	0.4
TEXAS (OS)	14	1	2,520	536	320	0.8
VERMONT	0	-1	0	-270	190	0.0
VERMONT (OS)	3	-4	265	-212	190	0.1
VERMONT (AP)	0	-4	0	-342	190	0.0
VERMONT (S-AP)	3	3	365	365	190	0.2
VIRGIN ISLANDS	1	1	205	205	1	20.5
VIRGINIA (OS)	1	1	59	59	173	0.0
WEST VIRGINIA (OS)	1	1	30	30	36	0.1
WISCONSIN	31	4	2,288	1,138	1,820	0.1
NCDHIP TOTAL	748	79	106,063	20,614	11,135	1.0

1/ INCLUDES VIRGIN ISLANDS. (OS) = OWNER SAMPLER; (AP) = AM-PM; (S-AP) = SUPERVISED AM-PM.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981, EXCEPT DATA FOR VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 16.--ENROLLMENT IN THE WEIGH-A-DAY-A-MONTH PLAN, JANUARY 1, 1981

STATE	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARIZONA----------	4	-1	970	-707	75	1.3
CALIFORNIA-------	1	1	665	665	909	0.1
COLORADO---------	3	-1	269	-99	71	0.4
HAWAII-----------	2	0	418	6	13	3.2
IDAHO------------	1	1	1,174	1,174	159	0.7
ILLINOIS---------	0	-80	0	-4,371	230	0.0
MARYLAND---------	5	-1	472	141	124	0.4
NEBRASKA---------	0	-4	0	-225	121	0.0
NEVADA-----------	1	0	92	1	15	0.6
NORTH DAKOTA-----	11	2	527	14	93	0.6
OHIO-------------	6	1	422	127	375	0.1
UTAH-------------	4	3	663	549	77	0.9
WASHINGTON-------	3	-2	910	-654	200	0.5
WYOMING----------	4	3	229	175	12	1.9
NCDHIP TOTAL-----	45	-78	6,811	-3,204	11,135	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 17.--ENROLLMENT IN THE BASIC MANAGEMENT AND PRODUCTION PLAN, JANUARY 1, 1981

STATE	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	3	-2	237	-195	64	0.4
FLORIDA----------	1	1	324	324	187	0.2
INDIANA----------	60	-7	2,710	-261	207	1.3
KENTUCKY---------	14	-8	1,286	-617	243	0.5
LOUISIANA--------	39	1	3,329	-134	112	3.0
MISSISSIPPI------	21	2	1,788	251	97	1.8
NEW HAMPSHIRE----	6	0	173	4	30	0.6
NORTH CAROLINA---	7	-7	621	-237	135	0.5
SOUTH CAROLINA---	2	-2	138	-190	48	0.3
TENNESSEE--------	35	-3	3,211	-391	215	1.5
TEXAS------------	1	0	118	2	320	0.0
NCDHIP TOTAL-----	189	-25	13,935	-1,444	11,135	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 18.--ENROLLMENT IN ALL OTHER NONOFFICIAL PLANS JANUARY 1, 1981

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/80	COWS	CHANGE IN COWS FROM 1/1/80	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
MICHIGAN---------(TMT)	24	0	1,411	186	390	0.4
NCDHIP TOTAL-----	24	0	1,411	186	11,135	0.0

1/ (TMT) = TRIMONTHLY TESTING.

2/ PRELIMINARY DATA FOR JANUARY 1, 1981, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1981.

TABLE 19.—TYPES OF SERVICES BY STATE FOR COWS AND GOATS IN NCDHIP, JANUARY 1, 1981

STATE 1/	COW HERDS	COWS	DOE HERDS	DOES
	NUMBER	NUMBER	NUMBER	NUMBER
PROTEIN				
ARKANSAS	5	213	1	111
CALIFORNIA	38	8,177	4	23
COLORADO	231	27,653	42	258
CONNECTICUT	27	1,756	0	0
DELAWARE	2	79	0	0
IDAHO	155	13,349	0	0
ILLINOIS	10	463	0	0
IOWA	93	4,184	0	0
MAINE	20	913	0	0
MARYLAND	7	857	0	0
MASSACHUSETTS	27	1,442	0	0
MICHIGAN	80	4,208	0	0
MONTANA	36	2,968	0	0
NEVADA	0	0	4	17
NEW HAMPSHIRE	32	1,681	0	0
NEW JERSEY	6	509	0	0
NEW MEXICO	5	857	0	0
NEW YORK	845	49,886	0	0
OHIO	402	21,947	39	313
OKLAHOMA	5	294	0	0
OREGON	0	0	3	20
PENNSYLVANIA	151	8,400	0	0
SOUTH DAKOTA	2	135	0	0
UTAH	360	39,984	3	16
VERMONT	103	4,596	0	0
WASHINGTON	70	8,665	4	40
WEST VIRGINIA	1	73	0	0
WISCONSIN	279	12,884	0	0
WYOMING	12	1,277	0	0
NCDHIP TOTAL	3,004	217,450	100	798
SNF				
ALASKA	6	360	0	0
CALIFORNIA	580	187,705	12	299
COLORADO	1	70	0	0
IDAHO	18	1,127	0	0
ILLINOIS	1	26	0	0
IOWA	7	463	0	0
KANSAS	10	527	0	0
MISSOURI	1	52	0	0
MONTANA	4	244	0	0
NEBRASKA	6	328	0	0
NEVADA	9	1,509	0	0
NORTH DAKOTA	3	165	0	0
OREGON	40	3,584	35	343
UTAH	1	155	0	0
WYOMING	1	66	0	0
NCDHIP TOTAL	688	196,381	47	642
MASTITIS SCREENING				
ALABAMA	99	11,979	0	0
ALASKA	6	360	0	0
ARIZONA	100	41,575	0	0
ARKANSAS	3	120	1	111
CALIFORNIA	1,299	399,972	104	1,875
COLORADO	225	27,185	18	122
DELAWARE	3	196	0	0
FLORIDA	30	8,100	0	0
MASTITIS SCREENING (CON.)				
GEORGIA	131	15,327	0	0
HAWAII	9	5,743	0	0
IDAHO	89	8,635	0	0
ILLINOIS	422	25,375	0	0
INDIANA	221	13,481	0	0
IOWA	744	40,357	0	0
KANSAS	376	26,209	0	0
KENTUCKY	184	11,408	0	0
LOUISIANA	67	6,767	0	0
MARYLAND	269	24,312	1	6
MICHIGAN	716	54,552	0	0
MINNESOTA	1,351	70,057	0	0
MISSISSIPPI	2	398	0	0
MONTANA	71	6,653	4	15
NEBRASKA	60	4,001	0	0
NEVADA	35	9,961	0	0
NEW JERSEY	100	7,870	0	0
NEW MEXICO	28	17,955	0	0
NEW YORK	2,298	148,139	0	0
NORTH CAROLINA	393	42,837	0	0
NORTH DAKOTA	31	1,914	0	0
OHIO	857	53,304	4	71
OKLAHOMA	1	46	0	0
OREGON	212	19,365	13	20
PENNSYLVANIA	2,100	108,700	0	0
SOUTH CAROLINA	56	8,736	0	0
SOUTH DAKOTA	155	10,801	0	0
TENNESSEE	3	249	0	0
TEXAS	87	10,845	0	0
UTAH	75	9,621	3	16
VERMONT	1	66	0	0
VIRGINIA	633	58,236	0	0
WASHINGTON	449	65,930	3	57
WEST VIRGINIA	13	900	0	0
WISCONSIN	3,396	172,535	0	0
WYOMING	4	438	0	0
NCDHIP TOTAL	17,404	1,551,210	151	2,293
FORAGE TESTING 2/				
IOWA	150	7,500	0	0
MASSACHUSETTS	5	380	0	0
NORTH CAROLINA	375	40,000	0	0
NORTH DAKOTA	6	280	0	0
OHIO	25	6,300	0	0
PENNSYLVANIA	7,000	225,000	0	0
NCDHIP TOTAL	7,561	279,460	0	0
PREGNANCY TESTING 3/				
IOWA	80	600	0	0
NORTH DAKOTA	20	1,000	0	0
SOUTH CAROLINA	10	1,300	0	0
VIRGIN ISLANDS	4	580	0	0
NCDHIP TOTAL	114	3,480	0	0
RATION BALANCING				
NORTH CAROLINA	200	25,000	0	0
NCDHIP TOTAL	200	25,000	0	0

1/ INCLUDES VIRGIN ISLANDS IN PREGNANCY TESTING.

2/ THE FOLLOWING STATES REPORTED FORAGE TESTING IN TERMS OF SAMPLES TESTED: NEW YORK = 32,100, TEXAS = 75, AND WISCONSIN = 8,500.

3/ THE FOLLOWING STATES REPORTED PREGNANCY TESTING IN TERMS OF SAMPLES TESTED: NEW YORK = 7,500, OHIO = 500, AND TEXAS = 41.

TABLE 20.--SUMMARY OF VERIFICATION IDENTIFICATION PROGRAM (VIP) ACTIVITY, 1976-80 AND ALL YEARS

STATE 1/	1976				1977				1978			
	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ARKANSAS---------	0	0	0	0	0	0	0	0	2	0	13	13
CALIFORNIA-------	0	0	0	0	0	0	0	0	2	45	0	45
CONNECTICUT------	0	0	0	0	0	0	0	0	1	0	1	1
DELAWARE---------	0	0	0	0	1	0	5	5	1	0	6	6
FLORIDA----------	0	0	0	0	2	0	15	15	3	0	17	17
IDAHO------------	0	0	0	0	0	0	0	0	1	1	33	34
ILLINOIS---------	2	1	7	8	29	0	521	521	29	3	325	328
INDIANA----------	1	0	5	5	9	0	223	223	4	0	77	77
IOWA-------------	30	4	361	365	98	12	1,687	1,699	97	12	1,322	1,334
KANSAS-----------	14	0	684	684	67	2	1,946	1,948	101	5	2,592	2,597
KENTUCKY---------	0	0	0	0	7	2	181	183	2	0	11	11
MAINE------------	0	0	0	0	4	0	30	30	7	3	85	88
MARYLAND---------	2	0	2	2	2	0	33	33	3	1	48	49
MASSACHUSETTS----	0	0	0	0	1	0	1	1	2	0	72	72
MICHIGAN---------	0	0	0	0	21	4	224	228	7	0	111	111
MINNESOTA--------	3	0	21	21	63	9	1,250	1,259	74	10	1,153	1,163
MISSOURI---------	13	4	258	262	39	9	1,041	1,050	77	9	1,105	1,114
MONTANA----------	0	0	0	0	0	0	0	0	0	0	0	0
NEBRASKA---------	0	0	0	0	19	8	432	440	32	15	776	791
NEW HAMPSHIRE----	0	0	0	0	0	0	0	0	4	1	12	13
NEW JERSEY-------	0	0	0	0	0	0	0	0	0	0	0	0
NEW YORK---------	3	0	5	5	75	1	799	800	83	4	958	962
NORTH CAROLINA---	0	0	0	0	2	0	14	14	2	0	17	17
NORTH DAKOTA-----	0	0	0	0	3	1	18	19	5	0	49	49
OHIO-------------	1	0	3	3	28	6	467	473	33	4	326	330
OKLAHOMA---------	0	0	0	0	4	0	154	154	5	0	115	115
PENNSYLVANIA-----	0	0	0	0	14	0	238	238	27	1	212	213
PUERTO RICO------	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH CAROLINA---	0	0	0	0	1	0	5	5	0	0	0	0
SOUTH DAKOTA-----	0	0	0	0	6	0	52	52	4	0	15	15
TEXAS------------	0	0	0	0	0	0	0	0	1	0	1	1
UTAH-------------	0	0	0	0	4	1	134	135	2	0	70	70
VERMONT----------	0	0	0	0	0	0	0	0	0	0	0	0
VIRGINIA---------	0	0	0	0	0	0	0	0	0	0	0	0
WASHINGTON-------	0	0	0	0	2	0	76	76	1	0	20	20
WISCONSIN--------	1	0	2	2	42	7	664	671	29	6	356	362
NCDHIP TOTAL-----	70	9	1,348	1,357	543	62	10,210	10,272	641	120	9,898	10,018

1/ INCLUDES PUERTO RICO.

TABLE 20.--SUMMARY OF VERIFICATION IDENTIFICATION PROGRAM (VIP) ACTIVITY, 1976-80 AND ALL YEARS--CONTINUED

STATE 1/	1979				1980				ALL YEARS			
	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ARKANSAS---------	5	0	166	166	6	0	212	212	13	0	391	391
CALIFORNIA-------	1	2	0	2	0	0	0	0	3	47	0	47
CONNECTICUT------	0	0	0	0	0	0	0	0	1	0	1	1
DELAWARE---------	1	0	9	9	1	0	11	11	4	0	31	31
FLORIDA----------	1	0	79	79	3	0	75	75	9	0	186	186
IDAHO------------	3	5	45	50	4	4	81	85	8	10	159	169
ILLINOIS---------	28	3	577	580	29	0	524	524	117	7	1,954	1,961
INDIANA----------	6	0	175	175	9	0	242	242	29	0	722	722
IOWA-------------	94	9	1,096	1,105	107	9	1,277	1,286	426	46	5,743	5,789
KANSAS-----------	125	12	3,181	3,193	128	9	2,495	2,504	435	28	10,898	10,926
KENTUCKY---------	4	0	53	53	3	1	74	75	16	3	319	322
MAINE------------	4	0	78	78	9	0	58	58	24	3	251	254
MARYLAND---------	18	1	273	274	25	0	330	330	50	2	686	688
MASSACHUSETTS----	1	0	30	30	1	0	6	6	5	0	109	109
MICHIGAN---------	9	5	192	197	10	1	136	137	47	10	663	673
MINNESOTA--------	72	5	1,149	1,154	80	16	935	951	292	40	4,508	4,548
MISSOURI---------	92	21	1,204	1,225	122	11	1,686	1,697	343	54	5,294	5,348
MONTANA----------	0	0	0	0	1	0	17	17	1	0	17	17
NEBRASKA---------	45	22	865	887	51	17	996	1,013	147	62	3,069	3,131
NEW HAMPSHIRE----	3	0	16	16	1	0	13	13	8	1	41	42
NEW JERSEY-------	1	0	3	3	0	0	0	0	1	0	3	3
NEW YORK---------	65	7	1,181	1,188	62	2	1,036	1,038	288	14	3,979	3,993
NORTH CAROLINA---	3	0	9	9	1	0	30	30	8	0	70	70
NORTH DAKOTA-----	4	0	17	17	2	0	18	18	14	1	102	103
OHIO-------------	52	1	681	682	58	10	1,092	1,102	172	21	2,569	2,590
OKLAHOMA---------	11	3	395	398	12	6	366	372	32	9	1,030	1,039
PENNSYLVANIA-----	22	0	175	175	21	0	160	160	84	1	785	786
PUERTO RICO------	0	0	0	0	10	3	72	75	10	3	72	75
SOUTH CAROLINA---	0	0	0	0	0	0	0	0	1	0	5	5
SOUTH DAKOTA-----	6	0	76	76	12	0	208	208	28	0	351	351
TEXAS------------	0	0	0	0	0	0	0	0	1	0	1	1
UTAH-------------	4	1	32	33	3	0	22	22	13	2	258	260
VERMONT----------	1	0	1	1	2	0	22	22	3	0	23	23
VIRGINIA---------	0	0	0	0	1	0	50	50	1	0	50	50
WASHINGTON-------	0	0	0	0	0	0	0	0	3	0	96	96
WISCONSIN--------	31	3	355	358	65	1	487	488	168	17	1,864	1,881
NCDHIP TOTAL-----	712	100	12,113	12,213	839	90	12,731	12,821	2,805	381	46,300	46,681

1/ INCLUDES PUERTO RICO.

TABLE 21.--SUMMARY OF OFFICIAL DAIRY RECORDKEEPING PLANS, 1906-81 1/

YEAR 2/	ASSOCIATIONS 2/	SUPERVISORS 3/	HERDS ENROLLED	COWS ENROLLED	COWS PER HERD	COWS ENROLLED	HERDS REPORTED	COWS REPORTED	AVERAGE PRODUCTION: MILK	AVERAGE PRODUCTION: FAT	AVERAGE PRODUCTION: FAT	ALL MILK COWS 4/	ALL PLANS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	PCT	NUMBER	NUMBER	LB	PCT	LB	THOUSANDS	PCT
1906	1	---	31	239	7.7	(5/)	---	---	5,300	4.06	215	17,110	(5/)
1907	4	---	---	1,606	---	(5/)	---	---	5,366	4.10	220	17,509	(5/)
1908	6	---	---	3,921	---	(5/)	---	---	---	---	---	17,872	(5/)
1909	25	---	---	11,921	---	0.1	---	---	---	---	---	18,081	0.1
1910	40	---	---	6/25,000	---	0.1	---	---	6/5,730	3.96	6/227	18,300	0.1
1911	64	---	---	6/40,000	---	0.2	---	---	---	---	---	18,302	0.2
1912	82	---	---	6/43,000	---	0.2	---	---	---	---	---	18,397	0.2
1913	100	---	---	47,150	---	0.3	---	---	---	---	---	18,460	0.3
1914	163	---	---	73,280	---	0.4	---	---	---	---	---	18,701	0.4
1915	211	---	---	105,526	---	0.6	---	---	---	---	---	19,150	0.6
1916	346	---	---	150,677	---	0.8	---	---	---	---	---	19,632	0.8
1917	459	---	11,720	216,831	18.5	1.1	---	---	---	---	---	20,092	1.1
1918	353	---	9,778	172,518	17.6	0.8	---	---	---	---	---	20,416	0.8
1919	385	---	10,000	167,313	16.7	0.8	---	---	---	---	---	20,425	0.8
1920	468	---	11,948	203,472	17.0	1.0	---	---	6,175	4.00	247	20,335	1.0
1921	452	---	11,209	193,928	17.3	1.0	---	---	---	---	---	20,336	1.0
1922	513	---	12,508	215,321	17.2	1.0	---	---	---	---	---	20,731	1.0
1923	627	---	16,357	277,010	16.9	1.3	---	---	---	---	---	21,018	1.3
1924 7/	---	---	---	---	---	---	---	---	---	---	---	21,211	---
1925	732	---	18,677	307,073	16.4	1.4	---	42,302	7,189	3.95	284	21,417	1.4
1926	777	---	19,540	327,653	16.8	1.5	---	103,443	7,331	3.96	290	21,503	1.5
1927	637	---	21,128	362,014	17.1	1.7	---	116,509	7,411	3.95	293	21,312	1.7
1928	947	---	23,327	414,891	17.8	2.0	---	152,412	7,476	3.96	296	21,191	2.0
1929	1,090	---	26,182	465,804	17.8	2.2	---	194,859	7,498	3.97	298	21,223	2.2
1930	1,143	---	27,888	507,549	18.2	2.4	---	235,624	7,642	3.96	303	21,618	2.4
1931	1,112	---	26,308	510,714	19.4	2.3	---	219,924	7,812	3.92	306	22,218	2.3
1932	1,005	---	20,351	427,044	21.0	1.9	---	186,683	7,858	3.95	310	23,108	1.9
1933	881	---	15,447	358,501	23.2	1.5	---	163,014	7,849	3.99	313	24,105	1.5
1934	793	---	13,694	325,837	23.8	1.3	---	203,930	8,015	4.02	322	25,062	1.3
1935	809	---	15,573	364,218	23.4	1.5	---	200,367	7,977	4.04	322	25,198	1.5
1936	876	---	17,344	404,412	23.3	1.7	---	257,248	7,912	4.03	319	24,187	1.7
1937	992	---	20,772	496,562	23.9	2.1	---	354,568	7,923	4.04	320	23,727	2.1
1938	1,106	---	23,701	558,993	23.6	2.4	---	448,025	7,831	4.05	317	23,340	2.4
1939	1,228	---	25,949	625,284	24.1	2.7	---	507,563	7,977	4.05	323	23,215	2.7
1940	1,300	---	27,948	676,141	24.2	2.9	---	545,382	8,133	4.07	331	23,273	2.9
1941	1,383	---	31,381	763,502	24.3	3.2	---	591,103	8,225	4.07	335	23,671	3.2
1942	1,421	---	32,957	816,117	24.8	3.4	---	514,758	8,323	4.07	339	24,288	3.4
1943	1,057	---	24,155	616,972	25.5	2.5	---	375,914	8,325	4.06	338	25,027	2.5
1944	954	---	20,825	561,587	27.0	2.2	---	383,337	8,296	4.05	336	25,451	2.2
1945	949	---	21,254	577,200	27.2	2.3	---	384,360	8,592	4.03	346	25,597	2.3
1946	1,124	---	23,331	627,878	27.0	2.5	---	413,554	8,635	4.04	349	25,033	2.5
1947	1,426	---	28,812	775,546	26.9	3.2	---	533,061	8,638	4.03	348	24,089	3.2
1948	1,668	---	33,274	886,129	26.6	3.8	---	620,385	8,675	4.03	350	23,329	3.8
1949	1,787	---	35,851	943,939	26.3	4.2	---	729,150	8,907	4.03	359	22,336	4.2
1950	1,973	---	40,100	1,088,872	27.2	4.9	---	836,922	9,172	4.03	370	22,024	4.9
1951	2,143	---	42,949	1,186,615	27.6	5.4	---	885,859	9,195	4.02	370	21,944	5.4
1952	2,109	---	40,105	1,166,297	29.1	5.4	---	928,376	9,192	3.98	366	21,505	5.4
1953	2,151	---	40,983	1,226,588	29.9	5.8	---	1,020,326	9,253	3.98	368	21,338	5.8
1954	2,175	---	41,254	1,311,698	31.8	6.1	---	1,079,557	9,363	3.97	372	21,691	6.1
1955	2,288	---	41,240	1,333,866	32.3	6.2	---	1,175,378	9,502	3.95	375	21,581	6.2
1956	2,266	---	40,984	1,406,306	34.4	6.7	---	1,229,971	9,713	3.94	383	21,044	8/8.5
1957	1,700	2,310	41,638	1,479,799	35.5	7.2	---	1,256,129	9,894	3.93	389	20,501	9/9.3
1958	1,544	2,293	39,985	1,548,884	38.7	7.8	---	1,345,750	10,068	3.91	394	19,774	10.7
1959	1,500	2,337	40,284	1,607,538	39.9	8.6	---	1,406,665	10,327	3.88	401	18,711	11.9
1960	1,509	2,397	41,293	1,746,752	42.3	9.8	---	10/1,343,725	10/10,561	3.87	10/409	17,901	13.6
1961	1,395	2,448	42,558	1,867,469	43.9	10.7	28,649	1,280,785	10,796	3.87	418	17,515	14.8
1962	1,436	2,472	42,034	1,958,355	46.6	11.4	32,794	1,531,826	11,032	3.86	426	17,243	15.8
1963	1,441	2,516	41,937	2,006,534	47.8	11.9	35,378	1,674,803	11,286	3.85	434	16,842	16.5
1964	1,420	2,474	40,670	2,010,144	49.4	12.4	35,689	1,746,475	11,685	3.83	447	16,260	17.4
1965	1,424	2,439	40,075	2,087,581	52.1	13.3	35,604	1,821,252	11,976	3.82	457	15,677	18.9
1966	1,418	2,378	38,879	2,058,592	52.9	13.8	34,886	1,852,533	12,127	3.81	462	14,953	19.8
1967	1,344	2,319	37,683	2,098,919	55.7	14.9	34,515	1,890,024	12,307	3.80	468	14,071	21.2
1968	1,318	2,304	36,869	2,131,929	57.8	15.9	33,560	1,924,200	12,397	3.80	471	13,415	22.6
1969	1,289	2,250	35,617	2,138,953	60.1	16.7	33,130	1,959,647	12,553	3.79	476	12,832	23.5
1970	1,267	2,225	34,308	2,122,011	61.9	17.2	31,138	1,937,390	12,750	3.79	483	12,307	25.3
1971	1,274	2,201	33,996	2,218,402	65.3	18.6	30,699	1,995,463	13,000	3.76	489	11,909	26.8
1972	1,247	2,186	33,197	2,244,685	67.6	19.1	30,190	2,050,132	13,226	3.75	496	11,776	27.2
1973	1,231	2,164	33,578	2,359,611	70.3	20.3	30,826	2,177,626	13,287	3.76	499	11,622	28.7
1974	1,130	2,209	33,146	2,416,669	72.9	21.4	30,280	2,221,349	13,163	3.75	493	11,297	30.2
1975	1,105	2,183	32,222	2,432,961	75.5	21.7	29,543	2,216,817	13,421	3.76	505	11,220	31.0
1976	1,051	2,218	32,232	2,438,365	75.7	22.0	29,634	2,240,752	13,632	3.75	511	11,087	31.4
1977	1,028	2,266	33,755	2,581,164	76.5	23.4	30,764	2,373,261	14,435	3.73	539	11,035	33.5
1978	1,046	2,432	34,972	2,704,064	77.3	24.7	31,783	2,476,946	14,631	3.70	542	10,930	35.4
1979	1,045	2,541	36,105	2,792,175	77.3	25.7	32,831	2,571,361	14,644	3.70	542	10,853	36.8
1980	1,025	2,638	37,576	2,966,558	78.9	26.8	34,449	2,771,379	14,786	3.70	547	11,074	37.9
1981	1,066	2,824	39,524	3,197,353	80.8	28.7	35,206	2,867,177	14,960	3.70	553	11,135	40.2

1/ DASHES INDICATE DATA NOT REPORTED OR CALCULATED.

2/ HERDS AND COWS ARE ENROLLED AS OF JANUARY 1 OF THE STATED YEAR. FROM 1981, THE REPORTED HERDS AND COWS AND AVERAGE PRODUCTION WILL BE FOR THE CALENDAR YEAR IMMEDIATELY PRECEDING THE STATED YEAR. INCLUDES ALL PLANS.

3/ INCLUDES ALL PLANS. PRIOR TO 1957, ASSOCIATIONS WERE COUNTED BASED ON SUPERVISOR CIRCUITS.

4/ 1906-24, U.S. ESTIMATE OF COWS AND HEIFERS 2 YEARS OLD AND OLDER JANUARY 1, KEPT FOR MILK, EXCLUDING THOSE NOT FRESH. ESTIMATED BY SUBTRACTING 1,120,000 FROM DATA IN TABLE 543, "AGRICULTURAL STATISTICS, 1967," FOR COWS AND HEIFERS 2 YEARS AND OLDER, KEPT FOR MILK.

1925-70, U.S. AVERAGE OF MILK COWS ON FARMS FOR PREVIOUS YEAR, EXCLUDING HEIFERS NOT YET FRESH. ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA).

1971-79, U.S. MILK COWS THAT HAVE CALVED JANUARY 1 OF STATED YEAR. ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) AND PUBLISHED IN "CATTLE." FINAL ESTIMATES FOR 1971-75 ARE IN "STATISTICAL BULLETIN 589." DATA FOR 1976-79 ARE PRELIMINARY.

5/ LESS THAN 0.05 PERCENT.

6/ ESTIMATED.

7/ DATE FOR COLLECTING DATA CHANGED IN 1924 FROM JULY 1 TO JANUARY 1, SO 1924 DATA WERE OMITTED.

8/ OWNER-SAMPLER TABULATION BEGAN IN 1956.

9/ WEIGH-A-DAY-A-MONTH TABULATION BEGAN IN 1957.

10/ AVERAGES FOR 1959 AND 1961. NATIONAL TESTING YEAR CHANGED IN 1960 TO BEGIN MAY 1.

TABLE 22.--SUMMARY OF NONOFFICIAL DAIRY RECORDKEEPING PLANS FOR WHICH PRODUCTION AVERAGES ARE CALCULATED, 1956-81 1/ 2/

YEAR	HERDS EN-ROLLED	COWS EN-ROLLED	COWS PER HERD	COWS ENROLLED	HERDS REPORTED	COWS REPORTED	AVERAGE PRODUCTION MILK		
							MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	NUMBER	NUMBER	LB	PCT	LB
1956------	17,110	374,479	21.9	1.8	---	---	---	---	---
1957------	20,778	405,090	19.5	2.0	---	---	---	---	---
1958------	21,269	490,001	23.0	2.5	---	---	---	---	---
1959------	22,807	549,916	24.1	2.9	---	---	---	---	---
1960------	24,274	615,899	25.4	3.4	---	---	---	---	---
1961------	24,498	655,885	26.8	3.7	---	---	---	---	---
1962------	24,954	698,302	28.0	4.1	---	---	---	---	---
1963------	25,376	726,478	28.6	4.3	14,761	423,545	10,606	3.73	396
1964------	25,598	752,229	29.4	4.6	13,574	385,493	10,885	3.71	404
1965------	26,604	818,406	30.8	5.2	18,409	559,608	11,402	3.71	423
1966------	26,259	839,838	32.0	5.6	19,172	598,133	11,472	3.70	425
1967------	25,439	825,127	32.4	5.9	17,912	575,816	11,607	3.72	432
1968------	25,143	847,485	33.7	6.3	17,318	592,647	11,847	3.72	441
1969------	24,359	842,330	34.6	6.6	17,908	614,939	11,932	3.72	444
1970------	23,281	839,343	36.1	6.8	16,971	611,819	12,185	3.72	453
1971------	22,581	836,751	37.1	7.0	16,569	612,080	12,413	3.71	460
1972------	21,345	805,555	37.7	6.8	16,107	618,088	12,544	3.74	466
1973------	20,895	806,270	38.6	6.9	16,183	631,269	12,488	3.75	468
1974------	19,738	783,195	39.7	6.9	16,037	639,964	12,353	3.75	463
1975------	18,112	749,807	41.4	6.7	14,704	610,910	12,503	3.80	475
1976------	19,999	943,451	47.2	8.5	16,784	753,089	13,104	3.79	497
1977------	21,000	1,006,359	47.9	9.1	17,662	815,988	13,539	3.76	509
1978-----	22,626	1,159,776	51.3	9.7	18,675	891,738	13,771	3.75	516
1979------	22,745	1,201,500	52.8	11.1	19,248	933,631	13,847	3.77	522
1980------	22,943	1,225,311	53.4	11.1	19,328	953,595	13,969	3.77	527
1981------	23,451	1,282,715	54.7	11.5	19,617	980,870	14,080	3.76	529

1/ DASHES INDICATE DATA NOT TABULATED OR AVAILABLE. OWNER-SAMPLER PLAN BEGAN IN 1956. STARTING IN 1976, ALL DATA ARE FOR THE FOLLOWING NONOFFICIAL PLANS: OWNER-SAMPLER (EXCLUDING OS-BAF AND OS-PTF), ALTERNATE AM-PM, COMMERCIAL, BIMONTHLY, AND TRIMONTHLY.

2/ HERDS AND COWS ARE ENROLLED AS OF JANUARY 1 OF THE STATED YEAR. FROM 1981 ON, THE REPORTED HERDS AND COWS AND AVERAGE PRODUCTION WILL BE FOR THE CALENDAR YEAR IMMEDIATELY PRECEDING THE STATED YEAR.

TABLE 23.--EXTENSION DAIRYMEN ADVISING ON THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM AS OF JANUARY 1, 1981

ALABAMA--------WILLIAM J. BARNES, DEPT. OF ANIMAL AND DAIRY SCIENCES, AUBURN UNIVERSITY, AUBURN 36830.
ALASKA----------ARTHUR L. BRUNDAGE, AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF ALASKA, PALMER 99645.
ARIZONA---------DENNIS V. ARMSTRONG, DEPT. OF ANIMAL SCIENCES, UNIVERSITY OF ARIZONA, TUCSON 85721.
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Dairy Herd Improvement Letter

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NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

- USDA Summary of 1980 U.S. Cow Herd Averages
- USDA Summary of 1980 U.S. Goat Herd Averages
- USDA Summary of 1980 Mexican Cow Herd Averages
- Error Counts for 305-Day Lactation Records, 1980

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Dairy Herd Improvement Letter

USDA SUMMARY OF 1980 U.S. COW HERD AVERAGES

By George R. Wiggans[1]

Averages for Herds in Official Plans:	14,960 pounds of milk, 553 pounds of fat
Averages for Herds in Nonofficial Plans:	14,080 pounds of milk, 529 pounds of fat

State and national cow-year averages for milk and fat production, feed amounts and cost, and milk value are presented. The averages are from herds that were enrolled in official and nonofficial Dairy Herd Improvement plans during 1980 and had been on test for at least 365 days prior to their last sample day on or before December 31, 1980. The test year for herd average records was changed to correspond to the calendar year. This change was approved at the 1980 Computing Center Workshop and resulted in an overlap of approximately 4 months for the 1979-80 and 1980 test years.[2]

Production averages from herds in official plans included 89 percent of the herds and 90 percent of the cows enrolled in these plans as of January 1, 1981. Production averages from herds in nonofficial plans that measure fat on an individual cow basis included 87 percent of the herds and 85 percent of the cows enrolled.[3] The numbers of cows and herds included are less than 100 percent of total enrollment because a herd's record was not included if the herd had more than one record, fewer than five cows, time on test less than 365 days, average milk production less than 4,000 pounds, average fat production less than 92 pounds, or average percent fat outside the following ranges:

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705. The author acknowledges the assistance of laboratory personnel Gerald J. King, dairy husbandman, in preparing text and tables and Barbara R. Wood, computer technician, in processing data.

[2] U.S. Department of Agriculture. USDA summaries of 1979-80 cow herd averages. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(7), pp. 1-21. 1980.

[3] Norman, H. D., Myers, E. F., and Dickinson, F. N. National Cooperative Dairy Herd Improvement Program participation report, January 1, 1981. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 57(3), 23 pp. 1981.

Breed:	Percent
Ayrshire	2.7 - 6.0
Brown Swiss	2.7 - 6.0
Guernsey	3.3 - 6.7
Holstein	2.5 - 5.0
Jersey	3.3 - 7.3
Milking Shorthorn	2.7 - 5.9
Other	2.3 - 7.3

Percent days in milk is set equal to 84 percent if the reported value is below 70 percent.

Two tables include records that were excluded from the other tables because of the restrictions on fat production. Table 10 summarizes records from nonofficial plans that do not have fat production measured on an individual cow basis (and therefore are not summarized with the other nonofficial plans) and records that had reported fat production outside U.S. Department of Agriculture (USDA) limits. Table 11 reports averages by type of testing plan. These two tables also include information from herds with more than one record reported. One record from each of these herds was used.

Information on amount of feed, feed cost, and income, in addition to milk and fat production, was reported by the Iowa, New York, North Carolina, Pennsylvania, and Washington dairy records processing centers (DRPC's). Averages for this additional information and milk and fat are presented separately for herd records with feeding information. Records with missing or unreasonable amounts of feed, feed costs, or value of product were not included in these averages.

Herd and cow numbers and averages reported in State newsletters may differ from values reported here because of differing limits or reporting periods among States.

1980 Official Plans

Summaries of herds in official plans are given in tables 1-6 for the 1980 test year. The values for cows per herd were calculated by dividing total cow-years by total herds in any grouping.

All herds.--Table 1 gives State and national totals and averages for all herds in official plans. The 2,867,176.9 cow-years in 35,206 herds in official plans averaged 14,960 pounds of milk and 553 pounds of fat. Average percent fat was 3.70, and average percent days in milk was 86. The number of cows per herd averaged 81.4. The increase over production averages from the 1979-80 test year was 174 pounds of milk and 6 pounds of fat.[2]

Table 2 gives totals and averages by breed and milk level. Of the two Holstein herds with milk levels more than 24,999 pounds, one herd averaged 27,479 pounds of milk, the highest milk production for any herd regardless of breed. Table 3 gives totals and averages by breed and herd size. Of the 2 Holstein herds with more than 3,000 cows, 1 herd had 3,563.9 cow-years, the largest number of cow-years for any herd regardless of breed.

Herd records with feeding information.--Forty-six percent of the herds enrolled in official plans had records with feeding information, a decrease from 49 percent for the 1979-80 test year. These herds included 40 percent of the cow-years in official plans, a decrease from 43 percent.[2] The proportion of cow-years was less than the proportion of herds because the records for many large herds had only production data. Table 4 gives State and national totals and averages of records with feeding information for herds in official plans. Average value of product was $1,851 and average feed cost was $715; therefore, average income over feed cost was $1,136, an increase of $63 over the 1979-80 test year's average.[2]

Table 5 gives totals and averages by breed and milk level. Table 6 gives totals and averages by breed and herd size.

For some of the records summarized in tables 4-6, the total ration did not include all four types of feed (concentrates, succulent forage, dry forage, and pasture). Therefore, the averages for feeds, cost, and value of product were each calculated only from herds for which the information was reported; consequently, some averages represent fewer cow-years than the total.

1980 Nonofficial Plans

Summaries of herds in nonofficial plans that measure fat production on an individual cow basis are given in tables 7-9 for the 1980 test year. Rhode Island, Puerto Rico, and the Virgin Islands did not have herds in nonofficial plans, and no herd average was submitted for the one commercial herd in Arizona.

Table 7 gives State and national totals and averages. The 980,870.1 cow-years in 19,617 herds in nonofficial plans averaged 14,080 pounds of milk and 529 pounds of fat. Average percent fat was 3.76, and average percent days in milk was 85. The number of cows per herd averaged 50.0. The increase over production averages from the 1979-80 test year was 111 pounds of milk and 2 pounds of fat.[2]

Table 8 gives totals and averages by breed and milk level. One Holstein herd averaged 23,059 pounds of milk, the highest milk production for any herd on nonofficial test regardless of breed. Table 9 gives totals and averages by breed and herd size. Of the 2 Holstein herds with more than 1,500 cows, 1 herd had 1,651.2 cow-years, the largest number of cow-years for any herd on nonofficial test regardless of breed.

Only the national values are reported for herd records with feeding information because of the low percentage of records from nonofficial plans with feeding information. The summary for this test year is in table 15.

Averages for Herd Records With Missing or Invalid Fat Production or Herd Sampling Instead of Individual Cow Sampling

Table 10 summarizes herds that did not have fat production reported, had average fat production outside USDA limits, or had fat production measured on a herd basis rather than an individual cow basis for the 15 States with 10 or more such herds. Cows in these herds represented about 3 percent of the total cow-years reported here. Florida, Georgia, and New York had the largest number of such herds. For some herds in which samples were not collected for individual cows, the percent fat determined by the milk processing plant was reported. However, "plant" fat test usually was not reported for herd records processed at the North Carolina DRPC.

Averages by Testing Plan and Year

Table 11 is a summary of all herds by testing plan with number of herds and cow-years, average cows per herd, percent days in milk, and milk production. The last three columns are a summary of herds, cow-years, and average fat production for those herds with reported fat production within USDA limits.

Tables 12-17 present a national summary by year for cows in official plans, nonofficial plans, and all cows. Information on all cows was obtained from the USDA Economics, Statistics, and Cooperatives Service. Values in tables 12 and 14 are also in the 1981 participation report.[3]

Table 12 summarizes totals and averages for all herd records from official plans, and table 13 summarizes totals and averages for herd records from official plans with feeding information; both tables begin with the 1939-40 test year. Table 14 summarizes totals and averages for all records from nonofficial plans, and table 15 summarizes totals and averages for records from nonofficial plans with feeding information; these two tables begin with the 1962-63 test year.

Table 16 compares production of cows in official or nonofficial plans with all other cows, starting with the 1962-63 test year. Cows in official and nonofficial plans for the 1980 test year produced 4,992 and 4,112 pounds more milk, respectively, than cows not enrolled in NCDHIP.

Table 17 presents production and value of product for all cows nationally for 1940 through 1980.

Table 1.--State and national cow-year totals and averages for all official herd records, 1980

State[1]	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
Alabama	201	25,189.2	125.3	85	13,187	3.62	477
Alaska	2	72.8	36.4	83	14,365	3.77	541
Arizona	115	45,689.5	397.3	85	15,548	3.72	579
Arkansas	131	8,027.0	61.3	85	12,989	3.53	459
California	1,205	431,725.0	358.3	85	16,550	3.73	618
Colorado	215	25,905.7	120.5	85	14,523	3.63	527
Connecticut	281	21,949.0	78.1	86	15,317	3.68	564
Delaware	47	3,963.7	84.3	88	15,543	3.70	575
Florida	54	13,937.3	258.1	84	12,538	3.51	440
Georgia	267	31,960.5	119.7	85	13,316	3.69	491
Hawaii	10	5,773.9	577.4	82	13,890	3.08	428
Idaho	403	39,741.8	98.6	86	14,831	3.61	536
Illinois	1,059	60,946.2	57.6	86	14,396	3.83	551
Indiana	876	51,577.9	58.9	87	14,548	3.77	549
Iowa	1,332	66,825.0	50.2	86	14,051	3.79	532
Kansas	681	45,898.0	67.4	86	14,150	3.60	510
Kentucky	458	29,698.4	64.8	84	12,849	3.74	480
Lonisiana	272	27,617.7	101.5	84	11,895	3.47	413
Maine	383	21,441.6	56.0	86	15,276	3.63	554
Maryland	586	49,387.4	84.3	86	14,257	3.73	532
Massachusetts	288	17,570.9	61.0	86	14,946	3.67	549
Michigan	1,411	108,429.5	76.8	84	15,467	3.69	571
Minnesota	3,929	199,337.5	50.7	86	14,510	3.71	539
Mississippi	237	22,479.5	94.9	84	12,474	3.60	449
Missouri	699	45,889.9	65.7	85	13,825	3.63	502
Montana	82	6,512.1	79.4	86	14,261	3.60	514
Nebraska	411	28,367.7	69.0	85	13,395	3.67	491
Nevada	36	9,665.1	268.5	85	15,079	3.34	504
New Hampshire	197	12,038.0	61.1	86	15,070	3.74	563
New Jersey	178	13,118.7	73.7	87	15,456	3.72	575
New Mexico	46	24,877.3	540.8	84	15,985	3.54	566
New York	3,154	211,067.2	66.9	86	15,599	3.65	570
North Carolina	601	63,224.8	105.2	87	14,844	3.58	531
North Dakota	117	6,946.8	59.4	84	12,885	3.52	454
Ohio	1,565	95,192.5	60.8	87	14,767	3.82	564
Oklahoma	247	18,868.3	76.4	84	14,037	3.64	511
Oregon	353	39,425.5	111.7	86	15,219	3.81	580
Pennsylvania	3,559	205,251.2	57.7	86	14,950	3.79	566
Puerto Rico	117	21,985.9	187.9	79	9,086	3.07	279
Rhode Island	25	1,228.1	49.1	85	13,794	3.76	519
South Carolina	207	28,423.1	137.3	86	13,162	3.91	514
South Dakota	224	13,434.6	60.0	85	13,657	3.71	506
Tennessee	592	52,838.4	89.3	85	13,818	3.68	509
Texas	478	60,957.4	127.5	84	13,979	3.63	507
Utah	320	34,074.0	106.5	86	15,503	3.51	544
Vermont	906	52,715.2	58.2	86	14,830	3.70	548
Virgin Islands	3	343.6	114.5	81	8,421	2.79	235
Virginia	883	82,681.9	93.6	86	14,805	3.55	526
Washington	630	85,701.8	136.0	86	15,925	3.68	586
West Virginia	168	13,041.3	77.6	86	14,040	3.56	500
Wisconsin	4,936	281,821.5	57.1	86	15,316	3.77	577
Wyoming	29	2,340.0	80.7	84	13,909	3.52	489
United States	35,206	2,867,176.9	81.4	86	14,960	3.70	553

[1] Includes Puerto Rico and Virgin Islands.

Table 2.--National cow-year totals and averages for all official herd records, by breed and milk level, 1980

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
Lb	Number	Number	Number	Pct	Lb	Pct	Lb
			Ayrshire				
Less than 7,000---	2	78.3	39.2	75	6,592	3.88	256
7,000 - 7,999---	3	83.3	27.8	79	7,739	3.92	303
8,000 - 8,999---	9	470.8	52.3	80	8,731	3.89	340
9,000 - 9,999---	31	1,090.6	35.2	83	9,424	3.96	373
10,000 - 10,999---	58	2,627.0	45.3	83	10,530	4.00	421
11,000 - 11,999---	80	3,226.8	40.3	85	11,500	3.97	457
12,000 - 12,999---	91	4,432.5	48.7	84	12,475	3.92	489
13,000 - 13,999---	79	3,456.8	43.8	85	13,453	3.91	526
14,000 - 14,999---	35	1,619.7	46.3	86	14,404	3.93	566
15,000 - 15,999---	19	692.9	36.5	86	15,586	3.84	599
16,000 - 16,999---	8	319.7	40.0	86	16,480	3.95	651
17,000 - 17,999---	1	21.5	21.5	90	17,768	3.52	626
18,000 - 18,999---	1	136.4	136.4	87	18,916	3.78	715
Total or average-----------	417	18,256.3	43.8	84	12,296	3.94	484
			Brown Swiss				
Less than 7,000---	3	100.6	33.5	84	5,355	4.26	228
7,000 - 7,999---	9	431.5	47.9	81	7,790	3.75	292
8,000 - 8,999---	16	890.1	55.6	81	8,556	4.08	349
9,000 - 9,999---	32	1,496.4	46.8	83	9,551	4.06	388
10,000 - 10,999---	67	2,813.2	42.0	84	10,578	3.95	418
11,000 - 11,999---	98	4,856.5	49.6	85	11,519	4.11	473
12,000 - 12,999---	119	5,121.8	43.0	86	12,543	4.11	516
13,000 - 13,999---	97	4,622.1	47.7	86	13,418	4.10	550
14,000 - 14,999---	62	3,418.3	55.1	86	14,479	4.10	593
15,000 - 15,999---	31	1,577.3	50.9	87	15,499	4.04	626
16,000 - 16,999---	15	1,197.2	79.8	88	16,504	3.98	657
17,000 - 17,999---	4	281.7	70.4	90	17,357	3.96	687
Total or average----------	553	26,806.7	48.5	85	12,548	4.07	511
			Guernsey				
Less than 7,000---	10	492.0	49.2	76	6,231	4.62	288
7,000 - 7,999---	29	1,284.6	44.3	84	7,670	4.71	361
8,000 - 8,999---	69	3,551.1	51.5	83	8,475	4.55	386
9,000 - 9,999---	172	9,378.7	54.5	85	9,521	4.72	449
10,000 - 10,999---	251	14,516.5	57.8	86	10,539	4.65	490
11,000 - 11,999---	210	11,430.7	54.4	87	11,475	4.70	539
12,000 - 12,999---	153	9,141.3	59.7	87	12,482	4.68	584
13,000 - 13,999---	75	4,417.0	58.9	88	13,468	4.66	628
14,000 - 14,999---	21	1,714.6	81.6	88	14,476	4.46	645
15,000 - 15,999---	8	393.5	49.2	89	15,318	4.68	717
16,000 - 16,999---	3	107.5	35.8	86	16,529	4.77	789
Total or average-----------	1,001	56,427.5	56.4	86	11,035	4.67	515
			Holstein				
Less than 7,000---	30	3,273.7	109.1	77	6,569	3.33	219
7,000 - 7,999---	66	6,635.2	100.5	78	7,641	3.30	252
8,000 - 8,999---	121	9,311.8	77.0	79	8,559	3.52	301
9,000 - 9,999---	333	24,939.3	74.9	80	9,538	3.52	336
10,000 - 10,999---	707	52,119.2	73.7	82	10,570	3.62	383
11,000 - 11,999---	1,461	100,590.6	68.9	83	11,553	3.64	420
12,000 - 12,999---	2,500	184,309.7	73.7	84	12,545	3.65	458
13,000 - 13,999---	4,011	287,848.4	71.8	85	13,532	3.67	496
14,000 - 14,999---	5,413	426,293.9	78.8	86	14,516	3.66	532
15,000 - 15,999---	5,757	492,037.0	85.5	86	15,495	3.65	566
16,000 - 16,999---	4,874	437,836.7	89.8	86	16,481	3.65	602
17,000 - 17,999---	3,166	313,311.9	99.0	86	17,470	3.65	637
18,000 - 18,999---	1,554	152,892.1	98.4	87	18,431	3.61	666
19,000 - 19,999---	670	72,868.2	108.8	87	19,385	3.62	701
20,000 - 20,999---	243	25,621.7	105.4	87	20,388	3.62	739
21,000 - 21,999---	73	11,632.3	159.3	87	21,486	3.57	766
22,000 - 22,999---	20	2,185.6	109.3	90	22,434	3.62	811
23,000 - 23,999---	6	1,785.0	297.5	87	23,437	3.66	858
24,000 - 24,999---	2	77.2	38.6	87	24,255	3.68	893
More than 24,999--	2	330.8	165.4	90	27,231	3.45	939
Total or average-----------	31,009	2,605,900.3	84.0	86	15,318	3.65	559

Table 2.—National cow-year totals and averages for all official herd records, by breed and milk level, 1980—Con.

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
Lb	Number	Number	Number	Pct	Lb	Pct	Lb
			Jersey				
Less than 7,000---	31	1,762.8	56.9	80	6,403	4.78	306
7,000 - 7,999---	80	4,582.2	57.3	83	7,574	4.89	370
8,000 - 8,999---	183	13,111.5	71.6	84	8,550	4.87	416
9,000 - 9,999---	299	19,313.7	64.6	85	9,505	4.86	462
10,000 - 10,999---	349	23,392.4	67.0	86	10,540	4.89	515
11,000 - 11,999---	263	22,412.9	85.2	87	11,464	4.95	567
12,000 - 12,999---	129	10,632.1	82.4	86	12,327	4.88	602
13,000 - 13,999---	53	5,135.4	96.9	87	13,376	4.87	651
14,000 - 14,999---	15	906.8	60.5	87	14,373	4.85	697
15,000 - 15,999---	3	193.3	64.4	88	15,375	4.92	757
Total or average----------	1,405	101,443.1	72.2	86	10,458	4.89	511
			Milking Shorthorn				
Less than 7,000---	2	95.5	47.8	81	6,543	3.48	228
7,000 - 7,999---	4	140.7	35.2	80	7,704	3.83	295
8,000 - 8,999---	8	252.3	31.5	81	8,481	3.64	309
9,000 - 9,999---	8	277.0	34.6	84	9,590	3.76	361
10,000 - 10,999---	23	867.0	37.7	81	10,434	3.68	384
11,000 - 11,999---	16	543.5	34.0	83	11,513	3.62	417
12,000 - 12,999---	8	215.9	27.0	85	12,460	3.77	470
13,000 - 13,999---	6	257.6	42.9	84	13,314	3.70	492
14,000 - 14,999---	2	48.1	24.1	87	14,125	3.78	534
16,000 - 16,999---	1	5.7	5.7	88	16,614	3.55	590
Total or average----------	78	2,703.3	34.7	82	10,618	3.68	391
			Mixed and other breeds				
Less than 7,000---	9	478.5	53.2	77	6,549	4.24	278
7,000 - 7,999---	15	812.5	54.2	83	7,722	3.98	307
8,000 - 8,999---	30	2,399.4	80.0	82	8,488	4.02	341
9,000 - 9,999---	64	3,391.8	53.0	82	9,569	4.13	395
10,000 - 10,999---	83	5,588.5	67.3	84	10,569	4.01	424
11,000 - 11,999---	121	9,659.6	79.8	84	11,462	3.94	452
12,000 - 12,999---	137	9,144.1	66.7	85	12,517	3.96	496
13,000 - 13,999---	108	8,804.7	81.5	86	13,499	3.87	522
14,000 - 14,999---	83	5,354.5	64.5	86	14,421	3.73	538
15,000 - 15,999---	51	5,445.9	106.8	86	15,378	3.55	546
16,000 - 16,999---	28	3,501.3	125.0	84	16,339	3.64	594
17,000 - 17,999---	11	955.9	86.9	86	17,392	3.58	622
18,000 - 18,999---	2	52.4	26.2	90	18,825	3.71	699
20,000 - 20,999---	1	50.6	50.6	89	20,057	3.29	660
Subtotals:							
Red Dane-------	1	77.8	77.8	83	12,411	4.25	527
Red and White--	23	1,241.6	54.0	86	15,355	3.67	564
Mixed----------	719	54,320.3	75.5	85	12,259	3.94	483
Total or average----------	743	55,639.7	74.9	85	12,619	3.84	485

Table 3.—National cow-year totals and averages for all official herd records, by breed and herd size, 1980

Herd size	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
Number	Number	Number	Number	Pct	Lb	Pct	Lb
Ayrshire							
5.0 - 25	111	1,623.5	14.6	85	12,404	3.92	486
25.1 - 50	172	6,353.6	36.9	84	12,030	3.93	473
50.1 - 75	88	5,338.1	60.7	84	12,213	3.91	477
75.1 - 100	26	2,165.6	83.3	85	12,332	3.91	482
100.1 - 150	15	1,746.7	116.4	86	13,545	4.02	544
150.1 - 200	2	353.5	176.8	84	13,282	3.89	517
200.1 - 300	3	675.3	225.1	86	11,338	4.13	468
Brown Swiss							
5.0 - 25	116	1,841.5	15.9	85	12,232	4.06	497
25.1 - 50	252	9,396.0	37.3	86	12,198	4.08	498
50.1 - 75	109	6,509.5	59.7	86	12,654	4.08	516
75.1 - 100	35	3,055.4	87.3	85	13,168	4.09	539
100.1 - 150	30	3,528.2	117.6	84	12,443	4.07	506
150.1 - 200	6	1,035.0	172.5	85	13,171	4.15	546
200.1 - 300	3	798.4	266.1	86	16,076	3.91	629
300.1 - 400	2	642.7	321.4	83	9,730	3.74	364
Guernsey							
5.0 - 25	136	2,134.6	15.7	86	10,945	4.64	508
25.1 - 50	445	16,794.9	37.7	87	10,762	4.69	505
50.1 - 75	239	14,393.8	60.2	86	11,079	4.68	519
75.1 - 100	95	8,099.5	85.3	86	11,219	4.67	524
100.1 - 150	45	5,401.8	120.0	87	10,978	4.72	518
150.1 - 200	24	4,053.2	168.9	85	11,297	4.65	525
200.1 - 300	9	2,292.0	254.7	85	11,846	4.36	517
300.1 - 400	5	1,631.1	326.2	85	10,864	4.60	500
400.1 - 500	1	406.4	406.4	81	9,543	4.40	420
500.1 - 750	2	1,220.2	610.1	83	11,786	4.59	541
Holstein							
5.0 - 25	1,151	22,505.6	19.6	86	14,706	3.67	540
25.1 - 50	10,690	419,010.0	39.2	86	14,938	3.68	550
50.1 - 75	8,851	539,847.2	61.0	86	15,145	3.66	555
75.1 - 100	4,278	368,011.0	86.0	86	15,072	3.64	549
100.1 - 150	3,297	396,147.1	120.2	86	15,049	3.62	545
150.1 - 200	1,077	184,765.9	171.6	86	15,184	3.62	549
200.1 - 300	841	201,645.8	239.8	85	15,263	3.62	552
300.1 - 400	327	111,891.8	342.2	85	15,807	3.64	575
400.1 - 500	155	69,290.7	447.0	85	15,814	3.62	573
500.1 - 750	197	117,845.5	598.2	84	16,674	3.65	609
750.1 - 1,000	67	59,190.4	883.4	84	16,859	3.64	614
1,000.1 - 1,250	35	38,610.2	1,103.1	84	17,061	3.66	625
1,250.1 - 1,500	17	23,229.9	1,366.5	84	17,283	3.71	642
1,500.1 - 2,000	15	24,839.3	1,656.0	85	16,233	3.64	591
2,000.1 - 3,000	9	22,233.7	2,470.4	84	16,385	3.62	593
More than 3,000	2	6,836.2	3,418.1	83	15,301	3.42	524
Jersey							
5.0 - 25	207	3,286.8	15.9	85	10,007	4.83	483
25.1 - 50	462	17,241.4	37.3	86	10,288	4.86	500
50.1 - 75	299	18,442.4	61.7	86	10,312	4.87	502
75.1 - 100	173	14,924.3	86.3	86	10,424	4.88	509
100.1 - 150	151	18,242.7	120.8	86	10,360	4.90	508
150.1 - 200	54	9,335.0	172.9	85	10,451	4.92	514
200.1 - 300	31	7,625.6	246.0	85	10,550	4.84	511
300.1 - 400	15	5,252.2	350.1	84	10,935	4.92	538
400.1 - 500	7	3,182.0	454.6	86	10,605	4.98	528
500.1 - 750	5	2,926.1	585.2	86	12,052	5.09	613
750.1 - 1,000	1	984.6	984.6	87	11,651	4.88	568
Milking Shorthorn							
5.0 - 25	31	514.3	16.6	82	10,827	3.70	401
25.1 - 50	32	1,172.2	36.6	82	10,300	3.66	377
50.1 - 75	10	582.5	58.3	83	11,019	3.67	404
75.1 - 100	4	322.6	80.7	84	10,747	3.77	405
100.1 - 150	1	111.7	111.7	75	10,526	3.77	397
Mixed and other breeds							
5.0 - 25	71	1,171.2	16.5	85	11,869	3.92	465
25.1 - 50	269	10,210.8	38.0	85	12,315	3.92	483
50.1 - 75	178	10,762.2	60.5	85	12,268	3.87	475
75.1 - 100	102	8,875.0	87.0	85	12,479	3.89	486
100.1 - 150	69	8,207.4	118.9	85	12,526	3.84	481
150.1 - 200	24	4,136.9	172.4	85	12,883	3.88	500
200.1 - 300	12	2,803.6	233.6	85	12,586	3.94	496
300.1 - 400	11	3,810.0	346.4	84	12,629	3.90	492
400.1 - 500	2	815.8	407.9	82	12,067	4.15	501
750.1 - 1,000	2	1,709.1	854.6	84	13,309	3.58	477
1,000.1 - 1,250	3	3,137.7	1,045.9	82	15,170	3.33	505

Table 4.--State and national cow-year totals and averages for herds on official test with feeding information reported, 1980[1]

State[2]	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc	Succ for-age	Dry for-age	Pas-ture days	Cost of conc	Feed cost	Feed cost/ cwt milk	Value of product	Income over feed cost
	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
Alabama	177	22,560.8	127.5	85	13,114	3.62	475	63	123	17	162	543	820	5.87	1,789	969
Arkansas	129	7,912.3	61.3	85	12,939	3.54	458	59	49	51	176	459	719	5.60	1,635	916
Connecticut	241	18,148.7	75.3	86	15,182	3.68	559	59	198	21	28	517	808	5.09	1,991	1,182
Delaware	34	2,574.6	75.7	88	15,390	3.69	568	49	185	19	35	386	638	4.17	2,044	1,406
Florida	46	12,263.1	266.6	84	12,378	3.52	436	96	59	16	136	709	882	5.89	1,905	1,023
Georgia	238	28,406.3	119.4	85	13,301	3.69	491	69	150	16	129	579	839	5.90	1,866	1,027
Idaho	148	13,928.8	94.1	85	14,883	3.60	536	60	65	78	12	402	735	4.75	1,774	1,040
Illinois	1,056	60,836.8	57.6	86	14,390	3.82	550	54	109	38	46	305	556	3.90	1,773	1,217
Indiana	827	48,510.6	58.7	87	14,525	3.77	548	59	139	35	41	404	705	4.85	1,836	1,131
Iowa	1,329	66,625.1	50.1	86	14,041	3.79	532	54	102	43	45	288	539	3.89	1,684	1,145
Kansas	670	45,182.4	67.4	86	14,127	3.61	510	65	99	49	55	401	690	4.93	1,723	1,032
Kentucky	438	28,023.1	64.0	84	12,842	3.74	480	53	130	26	115	403	640	5.01	1,632	992
Louisiana	261	26,544.5	101.7	84	11,831	3.49	413	59	28	31	325	488	692	5.72	1,588	897
Maine	337	18,113.4	53.7	86	15,069	3.64	549	60	131	30	79	545	816	5.23	2,009	1,193
Massachusetts	248	14,381.1	58.0	86	14,549	3.68	536	56	152	29	65	489	789	5.29	1,977	1,188
Mississippi	231	21,997.5	95.2	84	12,489	3.60	450	56	104	19	258	459	673	5.47	1,647	975
Missouri	683	44,785.9	65.6	85	13,765	3.63	500	58	80	48	116	416	701	5.12	1,680	979
Nebraska	409	28,205.1	69.0	85	13,367	3.67	490	58	102	47	36	330	593	4.50	1,600	1,007
New Hampshire	158	9,379.9	59.4	86	14,929	3.76	561	58	162	26	62	503	776	5.15	2,004	1,228
New Jersey	166	12,039.4	72.5	87	15,283	3.72	569	57	131	20	55	439	728	4.74	1,961	1,233
New York	2,962	195,723.6	66.1	86	15,546	3.65	568	58	138	26	70	440	710	4.56	1,985	1,275
North Carolina	499	51,148.5	102.5	87	14,742	3.59	529	59	195	15	56	511	837	5.14	1,999	1,162
North Dakota	117	6,946.8	59.4	84	12,885	3.52	454	55	80	54	50	273	543	4.26	1,490	947
Oklahoma	239	18,381.5	76.9	84	13,982	3.64	509	60	62	55	146	420	723	5.11	1,780	1,057
Oregon	88	8,796.9	100.0	86	14,733	3.80	560	53	95	52	67	410	770	4.78	1,808	1,037
Pennsylvania	3,402	195,087.2	57.3	86	14,887	3.79	564	62	146	31	66	435	721	4.84	1,922	1,200
Puerto Rico	11	2,248.9	204.4	80	9,086	3.10	282	40	67	3	304	371	615	6.84	1,723	1,108
Rhode Island	21	959.5	45.7	86	13,620	3.85	525	50	130	31	94	435	770	5.53	1,869	1,099
South Carolina	192	26,790.1	139.5	86	13,106	3.92	514	57	163	16	164	481	806	5.75	1,841	1,035
South Dakota	224	13,434.6	60.0	85	13,657	3.71	506	55	98	50	24	260	505	3.75	1,626	1,121
Tennessee	559	49,565.3	88.7	85	13,707	3.69	506	56	175	17	86	485	786	5.47	1,834	1,048
Texas	413	51,989.4	125.9	84	13,818	3.65	504	67	38	56	155	507	814	5.43	1,873	1,059
Vermont	785	45,437.0	57.9	86	14,737	3.71	547	54	104	24	87	479	728	4.97	1,957	1,229
Virginia	776	71,808.4	92.5	86	14,719	3.55	522	53	173	15	100	455	756	5.10	1,890	1,133
West Virginia	158	12,157.8	76.9	86	14,041	3.56	500	56	141	20	101	445	676	4.85	1,805	1,128
United States	18,272	1,280,894.9	70.1	86	14,359	3.69	530	59	126	31	87	437	715	4.90	1,851	1,136

[1] Feed and cost information is not reported by some processing centers.

[2] Includes Puerto Rico.

Table 5.--National cow-year totals and averages for herds on official test with feeding information reported, by breed and milk level, 1980[1]

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc	Succ forage	Dry forage	Pasture days	Cost of conc	Feed cost	Feed cost/ cwt milk	Value of product	Income over feed cost
Lb	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
Ayrshire																
Less than 7,000---	2	78.3	39.2	75	6,592	3.88	256	29	30	36	304	255	426	6.48	928	503
7,000 - 7,999---	2	78.3	39.2	79	7,780	3.88	302	32	183	68	308	292	493	6.33	1,057	565
8,000 - 8,999---	5	276.6	55.3	80	8,684	3.85	334	41	135	72	116	332	601	6.92	1,120	518
9,000 - 9,999---	23	842.4	36.6	82	9,444	3.95	373	43	79	42	140	294	516	5.46	1,221	705
10,000 - 10,999---	36	1,665.1	46.3	83	10,519	3.98	419	45	108	35	156	343	582	5.53	1,373	791
11,000 - 11,999---	51	2,005.2	39.3	84	11,472	3.97	455	45	106	35	136	329	589	5.14	1,502	913
12,000 - 12,999---	58	2,824.3	48.7	84	12,497	3.95	494	53	110	38	139	401	632	5.06	1,663	1,031
13,000 - 13,999---	55	2,382.3	43.3	85	13,468	3.94	530	54	128	34	138	436	698	5.19	1,795	1,097
14,000 - 14,999---	27	1,209.7	44.8	86	14,368	3.92	563	54	126	44	97	422	689	4.80	1,865	1,176
15,000 - 15,999---	10	319.1	31.9	87	15,521	3.88	602	60	106	39	157	508	763	4.91	2,070	1,307
16,000 - 16,999---	6	231.0	38.5	85	16,602	3.93	653	57	188	21	57	451	708	4.27	2,173	1,465
17,000 - 17,999---	1	21.5	21.5	90	17,768	3.52	626	65	--	43	131	610	780	4.39	2,287	1,507
Total or average-----------	276	11,933.8	43.2	84	12,228	3.94	482	50	113	38	139	383	631	5.21	1,612	981
Brown Swiss																
Less than 7,000---	2	82.9	41.5	84	5,391	4.32	233	21	32	73	144	142	371	6.96	701	330
7,000 - 7,999---	5	366.5	73.3	81	7,837	3.70	290	68	107	38	257	409	512	6.55	1,072	560
8,000 - 8,999---	10	360.3	36.0	80	8,596	3.99	343	46	79	41	150	302	504	5.84	1,082	578
9,000 - 9,999---	21	920.5	43.8	83	9,510	4.06	386	47	83	57	168	348	590	6.20	1,221	631
10,000 - 10,999---	42	1,853.4	44.1	85	10,592	3.92	415	56	115	44	143	369	625	5.82	1,402	777
11,000 - 11,999---	59	2,794.2	47.4	85	11,509	4.06	467	49	101	45	154	333	590	5.14	1,514	924
12,000 - 12,999---	67	2,611.2	39.0	87	12,547	4.11	516	52	116	47	150	340	614	4.89	1,641	1,027
13,000 - 13,999---	50	2,311.3	46.2	87	13,382	4.11	550	55	125	49	128	363	651	4.68	1,752	1,101
14,000 - 14,999---	29	1,515.4	52.3	86	14,420	4.07	587	59	103	45	198	450	767	4.65	1,944	1,177
15,000 - 15,999---	13	873.6	67.2	87	15,531	3.99	619	61	131	38	245	414	798	5.14	2,085	1,287
16,000 - 16,999---	5	213.6	42.7	88	16,577	4.07	675	63	118	42	126	519	801	4.84	2,221	1,419
17,000 - 17,999---	2	168.8	84.4	92	17,151	3.95	678	52	68	46	---	294	482	2.81	2,100	1,618
Total or average-----------	305	14,071.7	46.1	85	12,259	4.05	497	54	109	46	162	365	638	5.16	1,615	977
Guernsey																
Less than 7,000---	5	283.4	56.7	76	6,433	4.52	291	36	95	35	261	255	460	7.17	915	455
7,000 - 7,999---	13	627.1	48.2	85	7,643	4.62	353	38	75	29	232	293	502	6.53	1,104	603
8,000 - 8,999---	37	2,220.9	60.0	83	8,476	4.50	381	39	106	33	215	301	547	6.46	1,222	674
9,000 - 9,999---	90	4,412.7	49.0	86	9,534	4.68	446	43	98	37	162	300	533	5.60	1,345	812
10,000 - 10,999---	122	7,298.0	59.8	86	10,514	4.58	482	48	110	29	190	361	590	5.62	1,515	925
11,000 - 11,999---	99	5,188.2	52.4	87	11,555	4.68	541	50	110	32	174	379	635	5.49	1,666	1,031
12,000 - 12,999---	70	3,439.6	49.1	88	12,476	4.70	586	51	121	31	134	385	639	5.11	1,785	1,146
13,000 - 13,999---	41	2,135.7	52.1	88	13,422	4.71	632	53	116	33	152	399	676	5.03	1,944	1,268
14,000 - 14,999---	4	263.6	65.9	90	14,383	4.58	659	58	113	34	---	380	611	4.26	1,997	1,386
16,000 - 16,999---	2	50.5	25.3	87	16,185	4.65	752	69	136	23	192	584	817	5.06	2,420	1,604
Total or average-----------	483	25,919.7	53.7	86	10,817	4.64	502	47	109	32	175	353	596	5.57	1,552	956
Holstein																
Less than 7,000---	12	879.6	73.3	80	6,741	3.52	237	39	56	45	249	304	485	7.20	990	505
7,000 - 7,999---	28	1,496.1	53.4	80	7,535	3.64	274	34	85	34	223	250	482	6.41	998	516
8,000 - 8,999---	81	5,572.8	68.8	79	8,621	3.64	314	44	108	39	210	329	551	6.29	1,185	634
9,000 - 9,999---	215	14,403.1	67.0	81	9,575	3.61	346	45	103	39	200	332	568	5.72	1,243	675
10,000 - 10,999---	468	34,264.8	73.2	82	10,570	3.63	384	50	120	39	184	365	619	5.82	1,367	748
11,000 - 11,999---	923	65,544.9	71.0	83	11,561	3.62	419	53	120	40	185	385	650	5.52	1,488	838
12,000 - 12,999---	1,484	110,462.5	74.4	84	12,533	3.63	455	56	131	36	171	414	676	5.26	1,614	938
13,000 - 13,999---	2,207	157,046.4	71.2	85	13,527	3.64	492	57	135	36	154	419	699	5.03	1,728	1,029
14,000 - 14,999---	2,854	210,300.6	73.7	86	14,508	3.63	527	60	143	35	141	439	720	4.78	1,855	1,135
15,000 - 15,999---	2,818	205,987.6	73.1	86	15,496	3.63	563	61	150	33	136	458	750	4.69	1,983	1,233
16,000 - 16,999---	2,269	161,498.7	71.2	87	16,475	3.61	595	63	155	33	122	469	764	4.46	2,099	1,334
17,000 - 17,999---	1,454	103,045.2	70.9	87	17,441	3.61	629	66	157	34	125	498	791	4.36	2,218	1,427
18,000 - 18,999---	662	45,593.6	68.9	88	18,407	3.61	665	70	158	34	122	521	819	4.10	2,342	1,523
19,000 - 19,999---	254	17,302.2	68.1	88	19,394	3.59	696	70	156	37	113	523	833	3.88	2,456	1,623
20,000 - 20,999---	74	4,562.2	61.7	88	20,380	3.62	738	72	149	40	120	565	869	3.68	2,601	1,732
21,000 - 21,999---	13	833.0	64.1	88	21,289	3.49	744	68	148	26	103	552	869	2.84	2,702	1,832
22,000 - 22,999---	3	102.7	34.2	90	22,244	3.51	780	70	132	47	---	446	807	3.63	2,668	1,861
Total or average---------	15,819	1,138,896.0	72.0	86	14,769	3.62	535	60	143	35	147	444	727	4.81	1,888	1,161
Jersey																
Less than 7,000---	22	1,220.6	55.5	81	6,435	4.68	301	37	36	35	267	280	418	6.51	942	525
7,000 - 7,999---	53	3,481.7	65.7	82	7,581	4.84	367	42	87	31	211	332	515	6.79	1,105	590
8,000 - 8,999---	121	8,687.8	71.8	84	8,558	4.79	410	42	80	29	209	329	526	6.15	1,260	734
9,000 - 9,999---	192	13,221.3	68.9	85	9,517	4.80	457	48	86	30	192	377	585	6.14	1,409	824
10,000 - 10,999---	223	13,817.6	62.0	86	10,552	4.78	504	46	101	28	187	375	593	5.57	1,549	957
11,000 - 11,999---	164	11,083.5	67.6	87	11,414	4.85	554	50	106	28	151	413	645	5.66	1,679	1,034
12,000 - 12,999---	71	4,338.4	61.1	87	12,346	4.78	590	54	96	24	198	452	673	5.46	1,831	1,158
13,000 - 13,999---	36	3,093.3	85.9	87	13,453	4.71	634	53	119	26	182	449	713	5.30	2,001	1,288
14,000 - 14,999---	9	496.5	55.2	88	14,441	4.78	690	57	90	31	187	473	705	4.89	2,068	1,362
15,000 - 15,999---	3	193.3	64.4	88	15,375	4.92	757	70	102	32	242	526	725	4.71	2,315	1,590
Total or average-----------	894	59,634.0	66.7	85	10,264	4.79	492	47	95	28	189	382	596	5.86	1,513	916

See footnote at end of table.

Table 5.--National cow-year totals and averages for herds on official test with feeding information reported, by breed and milk level, 1980[1]--Con.

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc	Succ forage	Dry forage	Pasture days	Cost of conc	Feed cost	Feed cost/ cwt milk	Value of product	Income over feed cost
Lb	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
							Milking Shorthorn									
Less than 7,000---	2	95.5	47.8	81	6,543	3.48	228	25	17	75	178	195	455	6.96	673	218
7,000 - 7,999---	4	140.7	35.2	80	7,704	3.83	295	29	98	38	91	196	415	5.38	907	492
8,000 - 8,999---	6	207.5	34.6	81	8,495	3.60	306	28	89	55	177	193	414	4.87	1,024	610
9,000 - 9,999---	6	197.9	33.0	84	9,494	3.69	350	41	88	45	158	248	498	5.25	1,157	659
10,000 - 10,999---	11	432.4	39.3	81	10,482	3.67	385	34	61	51	181	207	436	4.16	1,221	785
11,000 - 11,999---	10	324.2	32.4	82	11,538	3.60	415	44	62	49	146	324	548	4.74	1,405	856
12,000 - 12,999---	5	139.3	27.9	85	12,318	3.70	456	41	97	44	138	320	564	4.59	1,502	938
13,000 - 13,999---	1	53.3	53.3	84	13,429	3.66	492	46	28	81	235	360	800	5.96	1,654	854
14,000 - 14,999---	2	48.1	24.1	87	14,125	3.78	534	56	74	45	98	290	587	4.16	1,749	1,162
Total or average-----------	47	1,638.9	34.9	82	10,211	3.66	374	37	70	51	157	249	489	4.86	1,219	730
							Mixed and other breeds									
Less than 7,000---	8	459.8	57.5	77	6,616	4.26	282	37	61	51	294	261	453	6.88	883	430
7,000 - 7,999---	11	616.8	56.1	82	7,769	3.96	308	46	59	55	242	320	554	7.12	1,023	469
8,000 - 8,999---	22	1,558.1	70.8	82	8,560	3.93	336	46	75	49	173	338	584	6.81	1,170	587
9,000 - 9,999---	39	2,109.4	54.1	83	9,579	4.02	385	47	72	43	194	360	576	6.02	1,262	687
10,000 - 10,999---	58	3,940.9	67.9	84	10,634	3.86	411	64	100	33	248	462	665	6.25	1,461	796
11,000 - 11,999---	80	6,270.8	78.4	84	11,482	3.85	442	65	100	34	202	484	688	5.99	1,564	876
12,000 - 12,999---	82	4,722.2	57.6	86	12,459	3.89	485	54	110	39	182	392	652	5.23	1,639	987
13,000 - 13,999---	63	4,494.9	71.3	86	13,493	3.90	526	57	136	32	219	436	703	5.21	1,789	1,086
14,000 - 14,999---	46	2,522.1	54.8	87	14,374	3.83	551	59	135	35	155	449	738	5.04	1,883	1,146
15,000 - 15,999---	24	1,391.1	58.0	87	15,527	3.75	583	59	158	23	118	465	763	4.45	2,019	1,255
16,000 - 16,999---	9	502.1	55.8	87	16,195	3.61	584	64	139	35	80	462	722	4.46	1,989	1,267
17,000 - 17,999---	5	187.5	37.5	88	17,463	3.60	628	65	114	31	92	503	747	4.28	2,157	1,410
18,000 - 18,999---	1	25.1	25.1	90	18,670	3.85	718	39	45	55	144	130	370	1.98	2,466	2,096
Total or average-----------	448	28,800.8	64.3	85	11,961	3.87	463	58	110	36	196	430	669	5.66	1,594	924

[1] Dashes indicate feed not included in ration.

Table 6.--National cow-year totals and averages for herds on official test with feeding information reported, by breed and herd size, 1980[1]

Herd size	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc	Succ forage	Dry forage	Pasture days	Cost of conc	Feed cost	Feed cost/ cwt milk	Value of product	Income over feed cost
Number	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
Ayrshire																
5.0 - 25	77	1,150.7	14.9	85	12,593	3.90	491	49	108	46	140	383	630	5.10	1,623	993
25.1 - 50	107	3,932.3	36.8	84	11,935	3.95	471	48	99	39	135	359	604	5.08	1,560	956
50.1 - 75	64	3,915.4	61.2	83	11,996	3.91	469	49	98	40	156	380	626	5.29	1,591	965
75.1 - 100	17	1,429.1	84.1	85	12,681	3.91	496	51	148	31	103	395	648	5.12	1,685	1,036
100.1 - 150	9	1,037.5	115.3	86	13,486	4.06	547	53	174	29	119	405	693	5.17	1,794	1,101
200.1 - 300	2	468.8	234.4	87	11,576	4.14	479	66	138	11	---	526	708	6.16	1,569	861
Brown Swiss																
5.0 - 25	62	953.2	15.4	85	12,145	4.03	489	52	111	52	147	381	665	5.37	1,569	904
25.1 - 50	145	5,408.2	37.3	86	12,050	4.08	492	49	102	49	147	315	569	4.79	1,556	987
50.1 - 75	62	3,706.8	59.8	85	12,116	4.06	492	51	120	40	144	357	624	4.94	1,588	963
75.1 - 100	21	1,829.5	87.1	86	13,283	4.09	543	61	145	38	146	399	725	5.22	1,752	1,027
100.1 - 150	12	1,442.8	120.2	83	11,826	4.04	478	60	77	59	203	409	673	5.95	1,632	959
150.1 - 200	1	186.9	186.9	83	15,003	3.81	572	34	139	57	365	270	950	6.33	2,091	1,141
200.1 - 300	1	217.8	217.8	83	14,455	4.03	583	76	13	38	365	620	860	5.95	2,063	1,203
300.1 - 400	1	326.5	326.5	86	10,829	3.40	368	93	80	--	128	740	880	8.13	1,622	742
Guernsey																
5.0 - 25	76	1,084.5	14.3	86	11,048	4.58	506	47	98	43	158	347	580	5.28	1,545	965
25.1 - 50	201	7,640.0	38.0	87	10,727	4.66	500	46	94	40	152	326	564	5.31	1,506	942
50.1 - 75	119	7,187.5	60.4	86	10,869	4.68	509	47	108	30	149	340	583	5.41	1,550	967
75.1 - 100	48	4,027.2	83.9	86	11,054	4.60	508	48	110	28	193	372	616	5.60	1,616	1,000
100.1 - 150	24	2,955.0	123.1	87	10,933	4.68	512	46	124	25	203	352	607	5.62	1,589	982
150.1 - 200	10	1,673.0	167.3	86	10,958	4.66	511	47	130	24	213	405	689	6.39	1,614	925
200.1 - 300	4	1,022.1	255.5	82	9,535	4.38	418	59	142	24	350	460	634	6.74	1,445	810
300.1 - 400	1	330.4	330.4	81	10,350	4.47	463	56	139	18	---	490	760	7.34	1,603	843
Holstein																
5.0 - 25	588	11,422.7	19.4	86	14,418	3.65	526	56	96	52	148	407	673	4.61	1,784	1,111
25.1 - 50	5,279	206,847.7	39.2	86	14,737	3.66	539	57	117	44	137	417	689	4.65	1,851	1,162
50.1 - 75	4,764	291,610.7	61.2	86	14,910	3.64	542	58	136	37	139	427	704	4.68	1,888	1,184
75.1 - 100	2,466	211,952.1	85.9	86	14,826	3.62	537	60	146	33	148	442	723	4.81	1,895	1,172
100.1 - 150	1,779	212,804.3	119.6	86	14,780	3.61	533	62	154	30	153	461	750	4.94	1,898	1,148
150.1 - 200	529	90,454.3	171.0	86	14,657	3.59	526	63	164	29	168	479	767	5.08	1,906	1,139
200.1 - 300	313	73,927.8	236.2	85	14,502	3.61	523	63	169	29	170	480	782	5.13	1,916	1,133
300.1 - 400	71	23,832.7	335.7	85	14,569	3.58	522	66	182	24	170	500	785	4.89	1,941	1,156
400.1 - 500	22	9,833.9	447.0	84	14,402	3.49	503	72	180	37	169	511	844	4.95	1,905	1,061
500.1 - 750	5	2,873.3	574.7	85	13,809	3.52	486	66	196	24	86	477	830	4.50	1,853	1,023
750.1 - 1,000	1	798.5	798.5	89	15,510	3.70	574	31	276	12	---	260	830	5.35	2,167	1,337
1,000.1 - 1,250	1	1,020.8	1,020.8	81	11,464	3.25	373	89	--	57	---	530	750	6.54	1,744	994
1,500.1 - 2,000	1	1,517.2	1,517.2	86	14,048	3.65	513	83	110	30	---	670	1,090	.64	2,227	1,137
Jersey																
5.0 - 25	135	2,093.5	15.5	85	10,128	4.79	485	44	75	43	154	362	570	5.69	1,456	886
25.1 - 50	297	11,105.9	37.4	86	10,371	4.80	498	45	76	38	159	369	571	5.54	1,499	928
50.1 - 75	203	12,542.5	61.8	86	10,255	4.80	492	45	88	30	166	364	567	5.51	1,481	914
75.1 - 100	103	8,865.0	86.1	85	10,264	4.81	494	47	96	25	197	379	578	5.69	1,516	938
100.1 - 150	97	11,750.9	121.1	86	10,174	4.81	489	49	106	26	212	385	598	5.93	1,518	920
150.1 - 200	34	5,867.4	172.6	84	10,095	4.76	481	49	108	18	184	391	628	6.33	1,525	897
200.1 - 300	15	3,630.8	242.1	85	10,189	4.73	482	51	103	20	300	446	683	6.82	1,557	874
300.1 - 400	8	2,874.5	359.3	84	10,880	4.81	523	54	87	27	178	425	671	6.20	1,611	940
400.1 - 500	2	903.5	451.8	85	9,971	4.80	479	44	153	16	218	374	748	7.53	1,578	830
Milking Shorthorn																
5.0 - 25	19	307.0	16.2	83	10,784	3.66	395	43	90	48	139	265	511	4.87	1,305	794
25.1 - 50	20	756.8	37.8	83	9,823	3.68	361	33	70	55	158	226	479	5.02	1,162	683
50.1 - 75	5	297.3	59.5	82	10,736	3.60	386	42	67	53	217	298	563	5.17	1,296	733
75.1 - 100	2	166.1	83.1	83	9,769	3.64	356	39	42	50	75	294	464	4.67	1,202	738
100.1 - 150	1	111.7	111.7	75	10,526	3.77	397	26	84	25	224	160	340	3.23	1,191	851
Mixed and other breeds																
5.0 - 25	45	733.1	16.3	84	11,424	3.91	447	48	72	50	167	339	582	5.20	1,414	832
25.1 - 50	172	6,553.2	38.1	85	12,325	3.89	480	52	104	42	147	375	633	5.17	1,577	944
50.1 - 75	117	7,152.3	61.1	85	11,990	3.90	468	51	114	37	172	357	602	5.11	1,560	958
75.1 - 100	56	4,844.9	86.5	84	11,969	3.94	472	54	112	36	186	425	673	5.70	1,605	931
100.1 - 150	38	4,543.4	119.6	84	11,939	3.85	460	58	125	29	234	468	726	6.03	1,619	893
150.1 - 200	11	1,846.1	167.8	85	12,195	3.85	469	56	113	28	289	444	736	6.10	1,677	941
200.1 - 300	5	1,146.3	229.3	85	10,880	3.75	408	54	89	30	222	436	641	6.23	1,460	820
300.1 - 400	3	1,047.4	349.1	84	10,989	3.48	382	102	74	12	365	724	844	7.69	1,681	837
750.1 - 1,000	1	934.1	934.1	85	11,637	3.64	424	134	--	--	---	920	920	7.91	1,829	909

[1] Dashes indicate feed not included in ration.

Table 7.--State and national cow-year totals and averages for all nonofficial herd records, 1980[1]

State	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
Alabama----------	6	430.4	71.7	87	11,879	3.62	430
Alaska-----------	5	346.9	69.4	86	16,349	3.43	560
Arkansas---------	45	4,405.8	97.9	85	13,488	3.49	471
California-------	83	28,847.8	347.6	83	14,902	3.70	551
Colorado---------	19	3,724.5	196.0	84	13,857	3.74	518
Connecticut------	30	1,916.6	63.9	85	14,554	3.69	537
Delaware---------	2	152.5	76.3	85	13,797	3.73	515
Florida----------	1	54.4	54.4	89	11,861	3.28	389
Georgia----------	4	236.4	59.1	86	13,768	3.49	481
Hawaii-----------	2	1,499.6	749.8	73	12,377	3.32	411
Idaho------------	36	4,249.0	118.0	86	14,868	3.67	545
Illinois---------	205	9,862.3	48.1	86	13,461	3.87	521
Indiana----------	216	10,433.3	48.3	86	13,863	3.70	513
Iowa-------------	861	37,846.7	44.0	85	12,706	3.78	480
Kansas-----------	111	5,582.2	50.3	85	13,432	3.55	477
Kentucky---------	28	2,018.7	72.1	85	13,726	3.69	506
Louisiana--------	31	2,647.9	85.4	85	12,714	3.50	445
Maine------------	27	1,093.3	40.5	86	13,627	3.61	492
Maryland---------	42	2,653.3	63.2	86	13,931	3.70	515
Massachusetts----	16	596.6	37.3	86	13,346	3.66	489
Michigan---------	681	39,366.0	57.8	84	14,594	3.69	538
Minnesota--------	1,953	80,053.8	41.0	85	13,494	3.76	508
Mississippi------	18	1,637.2	91.0	85	12,249	3.64	446
Missouri---------	168	9,521.8	56.7	85	12,818	3.64	467
Montana----------	5	1,015.4	203.1	82	12,249	3.49	427
Nebraska---------	46	3,447.7	75.0	86	13,327	3.64	485
Nevada-----------	1	242.7	242.7	82	14,293	3.58	512
New Hampshire----	29	1,179.1	40.7	85	12,475	3.74	466
New Jersey-------	18	978.9	54.4	85	13,848	3.70	512
New Mexico-------	4	608.2	152.1	83	13,494	3.81	514
New York---------	2,562	148,682.8	58.0	85	14,696	3.58	526
North Carolina---	23	1,492.3	64.9	87	14,430	3.54	511
North Dakota-----	32	2,478.9	77.5	85	13,196	3.58	472
Ohio-------------	490	24,235.5	49.5	86	14,141	3.77	533
Oklahoma---------	44	3,731.2	84.8	83	13,222	3.61	477
Oregon-----------	25	1,903.2	76.1	85	13,918	3.82	531
Pennsylvania-----	1,694	81,854.6	48.3	84	13,900	3.73	518
South Carolina---	3	217.8	72.6	86	9,338	3.77	352
South Dakota-----	262	12,791.7	48.8	83	12,911	3.69	476
Tennessee--------	22	2,512.5	114.2	84	13,125	3.65	479
Texas------------	18	2,241.2	124.5	84	12,741	3.61	460
Utah-------------	15	2,090.5	139.4	83	14,746	3.59	529
Vermont----------	239	12,777.1	53.5	84	13,385	3.66	490
Virginia---------	25	1,153.7	46.1	87	15,168	3.48	528
Washington-------	66	9,209.2	139.5	85	14,814	3.63	538
West Virginia----	5	131.7	26.3	86	14,206	3.72	529
Wisconsin--------	9,398	416,636.6	44.3	85	14,187	3.86	548
Wyoming----------	1	80.6	80.6	86	16,050	3.32	533
United States----	19,617	980,870.1	50.0	85	14,080	3.76	529

[1] Records are from plans that include both milk weights and fat sampling for individual cows.

Table 8.--National cow-year totals and averages for all nonofficial herd records, by breed and milk level, 1980[1]

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
Lb	Number	Number	Number	Pct	Lb	Pct	Lb
Ayrshire							
7,000 - 7,999---	1	31.7	31.7	82	7,822	3.85	301
8,000 - 8,999---	5	126.8	25.4	78	8,302	4.06	337
9,000 - 9,999---	11	428.5	39.0	83	9,641	3.96	382
10,000 - 10,999---	15	523.8	34.9	84	10,441	3.97	415
11,000 - 11,999---	15	486.9	32.5	85	11,557	3.94	455
12,000 - 12,999---	10	309.1	30.9	84	12,497	3.80	475
13,000 - 13,999---	7	263.8	37.7	83	13,444	3.82	513
14,000 - 14,999---	4	160.3	40.1	86	14,616	3.97	580
15,000 - 15,999---	4	130.3	32.6	85	15,454	3.84	594
Total or average-----------	72	2,461.2	34.2	84	11,496	3.91	450
Brown Swiss							
Less than 7,000---	1	25.2	25.2	71	6,700	3.15	211
7,000 - 7,999---	1	24.7	24.7	78	7,197	3.79	273
8,000 - 8,999---	5	255.3	51.1	82	8,644	3.97	343
9,000 - 9,999---	14	473.0	33.8	82	9,511	4.02	382
10,000 - 10,999---	23	658.2	28.6	83	10,554	4.15	438
11,000 - 11,999---	33	1,044.4	31.6	85	11,550	4.06	469
12,000 - 12,999---	14	434.4	31.0	84	12,280	3.97	487
13,000 - 13,999---	15	571.7	38.1	87	13,562	4.09	555
14,000 - 14,999---	14	499.1	35.7	85	14,537	3.98	578
15,000 - 15,999---	3	99.9	33.3	88	15,536	3.80	591
17,000 - 17,999---	1	48.7	48.7	85	17,168	3.59	616
Total or average-----------	124	4,134.6	33.3	84	11,801	4.03	475
Guernsey							
Less than 7,000---	7	170.8	24.4	82	5,896	4.63	273
7,000 - 7,999---	22	673.6	30.6	83	7,605	4.65	354
8,000 - 8,999---	37	1,446.6	39.1	84	8,515	4.70	400
9,000 - 9,999---	97	3,490.8	36.0	85	9,484	4.70	446
10,000 - 10,999---	123	4,165.8	33.9	86	10,449	4.69	490
11,000 - 11,999---	75	2,691.0	35.9	86	11,427	4.56	521
12,000 - 12,999---	55	2,058.6	37.4	87	12,448	4.51	562
13,000 - 13,999---	19	905.2	47.6	86	13,596	4.10	557
14,000 - 14,999---	7	241.8	34.5	85	14,423	3.88	560
15,000 - 15,999---	6	250.5	41.8	87	15,284	4.11	628
16,000 - 16,999---	3	154.3	51.4	90	16,111	3.95	637
Total or average-----------	451	16,249.0	36.0	86	10,682	4.56	487
Holstein							
Less than 7,000---	30	1,061.5	35.4	82	6,452	3.67	237
7,000 - 7,999---	42	1,524.2	36.3	81	7,634	3.69	282
8,000 - 8,999---	135	5,702.5	42.2	81	8,605	3.82	329
9,000 - 9,999---	317	13,846.5	43.7	81	9,542	3.80	363
10,000 - 10,999---	730	31,900.3	43.7	82	10,569	3.78	400
11,000 - 11,999---	1,462	68,054.8	46.5	83	11,554	3.79	438
12,000 - 12,999---	2,398	117,378.3	48.9	84	12,537	3.77	473
13,000 - 13,999---	3,488	171,170.7	49.1	85	13,525	3.76	509
14,000 - 14,999---	3,528	183,533.7	52.0	85	14,498	3.75	543
15,000 - 15,999---	3,030	159,285.3	52.6	86	15,474	3.72	576
16,000 - 16,999---	1,884	104,552.0	55.5	86	16,458	3.69	607
17,000 - 17,999---	829	46,921.9	56.6	86	17,421	3.66	637
18,000 - 18,999---	323	18,308.1	56.7	86	18,406	3.61	665
19,000 - 19,999---	96	5,061.3	52.7	86	19,321	3.64	703
20,000 - 20,999---	29	1,393.6	48.1	87	20,379	3.64	742
21,000 - 21,999---	5	205.0	41.0	86	21,337	3.64	776
22,000 - 22,999---	1	66.4	66.4	89	22,632	3.28	742
23,000 - 23,999---	1	43.4	43.4	88	23,059	3.65	842
Total or average-----------	18,328	930,009.5	50.7	85	14,240	3.74	532

See footnote at end of table.

Table 8.--National cow-year totals and averages for all nonofficial herd records, by breed and milk level, 1980[1]--Con.

Milk level	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
Lb	Number	Number	Number	Pct	Lb	Pct	Lb
			Jersey				
Less than 7,000---	11	338.2	30.7	80	5,962	4.73	282
7,000 - 7,999---	28	1,039.8	37.1	84	7,684	4.95	380
8,000 - 8,999---	60	2,077.7	34.6	84	8,516	4.81	410
9,000 - 9,999---	79	3,487.0	44.1	85	9,469	4.96	470
10,000 - 10,999---	75	2,258.8	30.1	86	10,460	4.86	508
11,000 - 11,999---	23	1,078.4	46.9	87	11,458	4.87	558
12,000 - 12,999---	12	724.3	60.4	85	12,269	4.66	572
13,000 - 13,999---	6	342.2	57.0	87	13,593	3.90	530
14,000 - 14,999---	1	70.8	70.8	87	14,942	4.64	693
15,000 - 15,999---	2	58.3	29.2	87	15,403	3.95	609
Total or average----------	297	11,475.5	38.6	85	9,777	4.82	471
			Milking Shorthorn				
Less than 7,000---	1	9.9	9.9	84	6,744	3.17	214
7,000 - 7,999---	2	20.2	10.1	83	7,681	3.76	289
8,000 - 8,999---	2	43.6	21.8	77	8,646	3.81	329
9,000 - 9,999---	2	42.0	21.0	85	9,889	3.73	369
13,000 - 13,999---	1	64.6	64.6	80	13,097	3.75	491
14,000 - 14,999---	1	32.3	32.3	85	14,766	3.76	555
Total or average----------	9	212.6	23.6	81	10,993	3.74	411
			Mixed and other breeds				
Less than 7,000---	8	141.3	17.7	82	6,442	4.08	263
7,000 - 7,999---	12	433.1	36.1	82	7,589	4.34	329
8,000 - 8,999---	20	534.0	26.7	83	8,467	3.91	331
9,000 - 9,999---	28	1,090.9	39.0	84	9,538	4.21	402
10,000 - 10,999---	50	1,927.6	38.6	83	10,496	4.15	436
11,000 - 11,999---	65	3,386.4	52.1	84	11,591	3.90	452
12,000 - 12,999---	54	2,427.1	44.9	84	12,515	3.87	484
13,000 - 13,999---	37	2,201.1	59.5	84	13,522	3.86	522
14,000 - 14,999---	29	2,055.7	70.9	84	14,411	3.66	527
15,000 - 15,999---	20	1,290.3	64.5	86	15,321	3.81	584
16,000 - 16,999---	10	673.6	67.4	84	16,574	3.63	602
17,000 - 17,999---	3	166.6	55.5	89	17,487	3.85	673
Subtotals:							
Red and White--	8	360.9	45.1	84	12,867	3.85	495
Mixed----------	328	15,966.8	48.7	84	12,374	3.88	480
Total or average----------	336	16,327.7	48.6	84	12,385	3.88	480

[1] Records are from plans that include both milk weights and fat sampling for individual cows.

Table 9.--National cow-year totals and averages for all nonofficial herd records, by breed and herd size, 1980[1]

Herd size	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
Number	Number	Number	Number	Pct	Lb	Pct	Lb
Ayrshire							
5.0 - 25---	24	423.3	17.6	83	11,393	3.85	439
25.1 - 50---	37	1,339.4	36.2	83	11,357	3.90	443
50.1 - 75---	9	527.5	58.6	85	11,734	3.95	464
75.1 - 100---	2	171.0	85.5	86	12,108	4.03	488
Brown Swiss							
5.0 - 25---	38	654.4	17.2	85	11,443	4.07	466
25.1 - 50---	75	2,640.0	35.2	84	12,051	4.03	486
50.1 - 75---	6	358.3	59.7	86	11,679	4.03	471
75.1 - 100---	3	266.6	88.9	85	12,609	4.02	507
100.1 - 150---	2	215.3	107.7	79	9,028	3.77	340
Guernsey							
5.0 - 25---	121	2,325.5	19.2	85	10,269	4.59	471
25.1 - 50---	268	9,593.9	35.8	86	10,756	4.56	490
50.1 - 75---	47	2,778.3	59.1	86	10,505	4.65	488
75.1 - 100---	8	692.9	86.6	87	10,922	4.61	503
100.1 - 150---	5	550.0	110.0	85	12,865	3.96	510
150.1 - 200---	2	308.4	154.2	82	8,631	4.94	426
Holstein							
5.0 - 25---	1,663	33,031.5	19.9	85	13,525	3.75	507
25.1 - 50---	10,246	386,615.3	37.7	85	14,044	3.76	528
50.1 - 75---	4,371	261,303.4	59.8	85	14,384	3.75	539
75.1 - 100---	1,194	102,288.5	85.7	85	14,410	3.72	536
100.1 - 150---	574	67,778.1	118.1	85	14,596	3.67	535
150.1 - 200---	144	24,678.1	171.4	85	14,353	3.64	523
200.1 - 300---	64	15,550.9	243.0	85	14,220	3.66	520
300.1 - 400---	33	11,500.0	348.5	84	14,506	3.66	531
400.1 - 500---	13	5,627.8	432.9	83	14,275	3.66	522
500.1 - 750---	14	8,454.7	603.9	82	14,995	3.64	546
750.1 - 1,000---	5	4,329.7	865.9	84	14,817	3.62	536
1,000.1 - 1,250---	4	4,294.1	1,073.5	79	15,825	3.58	566
1,250.1 - 1,500---	1	1,365.9	1,365.9	79	14,745	3.72	549
1,500.1 - 2,000---	2	3,191.5	1,595.8	83	13,747	3.55	488
Jersey							
5.0 - 25---	92	1,539.2	16.7	85	9,623	4.79	461
25.1 - 50---	147	5,151.5	35.0	86	9,633	4.74	457
50.1 - 75---	42	2,419.2	57.6	85	9,673	4.83	467
75.1 - 100---	8	679.5	84.9	85	10,044	4.94	496
100.1 - 150---	3	347.0	115.7	86	9,835	5.38	529
150.1 - 200---	2	352.6	176.3	87	11,574	4.23	490
200.1 - 300---	1	262.1	262.1	85	9,054	5.50	498
300.1 - 400---	2	724.4	362.2	81	10,584	5.12	542
Milking Shorthorn							
5.0 - 25---	5	61.1	12.2	81	8,214	3.71	305
25.1 - 50---	3	86.9	29.0	83	11,384	3.75	427
50.1 - 75---	1	64.6	64.6	80	13,097	3.75	491
Mixed and other breeds							
5.0 - 25---	88	1,702.1	19.3	84	11,326	4.00	453
25.1 - 50---	167	6,182.7	37.0	84	11,770	3.96	466
50.1 - 75---	51	3,020.6	59.2	85	12,284	4.00	491
75.1 - 100---	13	1,136.0	87.4	86	12,948	3.97	514
100.1 - 150---	6	724.1	120.7	85	13,604	3.75	510
150.1 - 200---	1	178.1	178.1	83	14,929	3.62	540
200.1 - 300---	5	1,232.2	246.4	82	13,590	3.64	494
300.1 - 400---	3	1,023.2	341.1	81	14,356	3.52	505
500.1 - 750---	2	1,128.7	564.4	82	12,762	3.74	477

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[1] Records are from plans that include both milk weights and fat sampling for individual cows.

Table 10.—Summary of Milk-Only-Record and Weigh-A-Day-A-Month plans and records with fat outside USDA limits, by State, 1980

State	Herds	Cow-years	Cows per herd	Days in milk	Milk	Records with fat production		
						Herds	Cow-years	Fat
	Number	Number	Number	Pct	Lb	Number	Number	Lb
Florida----------	95	32,563.9	342.8	84	12,143	0	0.0	0
Georgia----------	93	16,635.9	178.9	83	12,616	3	386.3	484
Illinois---------	45	2,587.9	57.5	87	14,222	45	2,587.9	521
Kentucky---------	34	3,200.0	94.1	84	12,831	30	2,673.7	471
Louisiana--------	10	1,127.1	112.7	84	9,350	0	0.0	0
Maine------------	17	2,383.2	140.2	85	15,717	17	2,383.2	546
Michigan---------	13	2,658.0	204.5	84	14,819	13	2,658.0	539
New York---------	168	14,326.6	85.3	86	14,712	164	14,160.0	522
North Carolina---	34	3,599.0	105.9	85	14,064	2	100.3	500
Oregon-----------	21	2,812.6	133.9	85	15,134	21	2,812.6	558
South Carolina---	11	1,365.8	124.2	85	13,418	1	319.1	525
South Dakota-----	30	2,029.9	67.7	84	13,133	30	2,029.9	476
Texas------------	31	5,406.1	174.4	84	14,085	9	1,920.9	483
Vermont----------	10	741.8	74.2	86	13,875	10	741.8	483
Wisconsin--------	37	2,073.5	56.0	85	14,320	23	1,402.9	548
Other States[1]----	118	15,285.5	129.5	84	12,879	95	11,232.0	485
United States----	767	108,796.8	141.8	84	13,167	463	45,408.6	510

[1] Includes States where number of herds was less than 10.

Table 11.--Summary of all cow herd averages by plan, 1980

Plan[1]	Herds[2]	Cow-years	Cows per herd	Days in milk	Milk	Records with fat production		
						Herds	Cow-years	Fat
	Number	Number	Number	Pct	Lb	Number	Number	Lb
DHIR-------------	4,179	332,629.5	79.6	86	15,506	4,178	332,610.9	596
DHIR-APCS--------	8	586.7	73.3	87	11,117	8	586.7	526
DHI--------------	28,585	2,258,844.0	79.0	86	15,083	28,578	2,258,065.0	557
DHI-APCS[3]--------	1,977	245,395.6	124.1	84	13,045	1,942	239,002.6	468
DHI-AP-----------	518	38,529.7	74.4	85	14,726	518	38,529.7	539
SS-AP------------	3,645	217,175.7	59.6	85	14,457	3,642	217,029.3	527
OS---------------	14,541	656,926.7	45.2	85	14,000	14,516	655,224.5	533
OS-AP------------	1,166	60,193.9	51.6	85	13,231	1,158	57,645.2	495
MOR/COMM/WADAM[4]--	810	135,739.5	167.9	84	13,736	585	83,939.2	524
Bimonthly--------	153	10,992.4	71.8	85	12,743	153	10,992.4	467
Trimonthly-------	24	1,380.0	57.5	84	14,804	24	1,380.0	559
United States----	55,606	3,958,393.6	71.2	85	14,693	55,302	3,895,005.4	547

[1] DHIR = Dairy Herd Improvement Registry; DHIR-APCS = DHIR with AM-PM component sampling; DHI = Official DHI; DHI-APCS = DHI with AM-PM component sampling; DHI-AP = DHI with monitoring device; SS-AP = Supervised Alternate AM-PM; OS = Owner-Sampler; OS-AP = Owner-Sampler AM-PM; MOR/COMM/WADAM = Milk-Only-Record, Commercial, or Weigh-A-Day-A-Month.

[2] An additional 12 herds in official plans and 1 herd in a nonofficial plan are included in this table over tables 1-8, because for those tables all duplicates were dropped, whereas for this table 1 of the 2 was kept.

[3] There are 35 fewer herds with fat production. These were primarly herds that transferred from the Supervised-Milk-Only plan.

[4] These plans are grouped because they are not coded uniquely.

Table 12.--Summary of cow-year totals and averages for all official herd records, 1939-80[1]

Test years	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
1939-40----	---	545,382	---	--	8,133	4.07	331
1940-41----	---	591,103	---	--	8,225	4.07	335
1941-42----	---	514,758	---	--	8,323	4.07	339
1942-43----	---	375,914	---	--	8,325	4.06	338
1943-44----	---	383,337	---	--	8,296	4.05	336
1944-45----	---	384,360	---	--	8,592	4.03	346
1945-46----	---	413,554	---	--	8,635	4.04	349
1946-47----	---	533,061	---	--	8,638	4.03	348
1947-48----	---	620,385	---	--	8,675	4.03	350
1948-49----	---	729,150	---	--	8,907	4.03	359
1949-50----	---	836,922	---	--	9,172	4.03	370
1950-51----	---	885,859	---	--	9,195	4.02	370
1951-52----	---	928,376	---	--	9,192	3.98	366
1952-53----	---	1,020,326	---	--	9,253	3.98	368
1953-54----	---	1,079,557	---	--	9,363	3.97	372
1954-55----	---	1,175,378	---	--	9,502	3.95	375
1955-56----	---	1,229,971	---	--	9,713	3.94	383
1956-57----	---	1,256,129	---	--	9,894	3.93	389
1957-58----	---	1,345,750	---	--	10,068	3.91	394
1958-59----	---	1,406,665	---	--	10,327	3.88	401
1959-60[2]---	---	1,343,725	---	--	10,561	3.87	409
1960-61----	28,649	1,280,785	44.7	--	10,796	3.87	418
1961-62----	32,794	1,531,826	46.7	--	11,032	3.86	426
1962-63----	35,378	1,674,803	47.3	--	11,286	3.85	434
1963-64----	35,689	1,746,475	48.9	--	11,685	3.83	447
1964-65----	35,604	1,821,252	51.2	--	11,976	3.82	457
1965-66----	34,886	1,852,533	53.1	--	12,127	3.81	462
1966-67----	34,515	1,890,024	54.8	--	12,307	3.80	468
1967-68----	33,560	1,924,200	57.3	85	12,397	3.80	471
1968-69----	33,130	1,959,647	59.2	85	12,553	3.79	476
1969-70----	31,138	1,937,390	62.2	85	12,750	3.79	483
1970-71----	30,699	1,995,463	65.0	85	13,000	3.76	489
1971-72----	30,190	2,050,132	67.9	85	13,226	3.75	496
1972-73----	30,826	2,177,626	70.6	85	13,287	3.76	499
1973-74----	30,280	2,221,349	73.4	85	13,163	3.75	493
1974-75----	29,543	2,216,817	75.0	85	13,421	3.76	505
1975-76----	29,634	2,240,752	75.6	86	13,632	3.75	511
1976-77----	30,764	2,373,261	77.1	86	14,435	3.73	539
1977-78----	31,783	2,476,946	77.9	86	14,631	3.70	542
1978-79----	32,831	2,571,361	78.3	86	14,644	3.70	542
1979-80----	34,449	2,771,379	80.4	85	14,786	3.70	547
1980[3]------	35,206	2,867,177	81.4	86	14,960	3.70	553

[1] Dashes indicate data unavailable.

[2] National test year was established in 1960 to begin May 1. No report was prepared in 1960, so averages of data for 1959 and 1960 were used. In previous years, beginning date varied by State.

[3] National test year changed in fall of 1980 to be the calendar year. Data included are for records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 13.—Summary of cow-year totals and averages for herds on official test with feeding information reported, 1939-80[1] [2]

Test years[3]	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc	Succ forage	Dry forage	Pasture days	Value of product	Cost of conc	Feed cost	Feed cost/ cwt milk	Income over feed cost
	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
1939-40---	19,330	467,775	24.2	--	8,049	4.05	326	--	---	--	---	165	32	68	0.84	97
1940-41---	20,590	500,340	24.3	--	8,182	4.06	332	--	---	--	---	176	34	70	.86	106
1941-42---	17,341	430,057	24.8	--	8,271	4.06	336	--	---	--	---	206	42	82	.99	124
1942-43---	12,006	306,142	25.5	--	8,219	4.06	334	--	---	--	---	245	53	99	1.20	146
1943-44---	11,433	308,678	27.0	--	8,141	4.05	330	--	---	--	---	274	63	118	1.45	156
1944-45---	11,204	304,748	27.2	--	8,434	4.02	339	--	---	--	---	302	68	128	1.49	174
1945-46---	11,795	318,461	27.0	--	8,440	4.05	342	--	---	--	---	314	70	130	1.54	184
1946-47---	15,566	418,738	26.9	--	8,454	4.02	340	--	---	--	---	352	79	141	1.67	211
1947-48---	18,573	494,036	26.6	--	8,429	4.01	338	--	---	--	---	388	95	165	1.96	223
1948-49---	22,312	586,815	26.3	--	8,701	4.02	350	--	---	--	---	390	85	156	1.79	234
1949-50---	24,841	675,685	27.2	--	8,949	4.01	359	--	---	--	---	359	76	147	1.64	212
1950-51---	26,134	721,311	27.6	--	8,983	4.02	361	--	---	--	---	370	81	154	1.71	216
1951-52---	26,423	768,916	29.1	--	9,015	3.97	358	--	---	--	---	399	87	165	1.83	234
1952-53---	18,557	525,346	28.3	--	9,069	3.96	359	30	56	37	168	461	101	194	2.14	267
1953-54---	26,834	748,234	27.9	--	9,117	3.96	361	28	55	37	174	434	93	188	2.06	246
1954-55---	28,727	822,254	28.6	--	9,261	3.94	365	28	61	37	178	429	89	183	1.98	246
1955-56---	28,254	849,344	30.1	--	9,470	3.93	372	29	64	39	174	433	86	181	1.91	252
1956-57---	27,133	863,275	31.8	--	9,621	3.92	377	30	66	39	173	448	88	183	1.90	265
1957-58---	27,525	900,269	32.7	--	9,787	3.91	383	31	69	40	171	462	92	190	1.94	272
1958-59---	27,796	902,074	32.5	--	10,042	3.89	391	33	75	40	174	475	93	195	1.94	280
1959-60---	23,220	795,892	34.3	--	10,045	3.89	391	33	76	40	169	479	93	196	1.95	283
1960-61---	18,644	689,710	37.0	--	10,048	3.88	390	32	78	39	163	485	94	198	1.97	287
1961-62---	22,853	882,827	38.6	--	10,676	3.87	413	36	82	40	175	502	103	207	1.94	295
1962-63---	27,093	1,089,290	40.2	84	10,983	3.85	423	39	92	40	156	501	113	222	2.02	279
1963-64---	27,893	1,173,099	42.1	84	11,428	3.84	439	42	98	38	151	521	120	237	2.07	284
1964-65---	28,237	1,229,676	43.5	85	11,744	3.82	449	44	102	38	151	539	127	244	2.08	295
1965-66---	28,013	1,260,621	45.0	85	11,885	3.81	453	45	108	36	114	559	133	256	2.15	303
1966-67---	27,483	1,282,357	46.7	85	12,030	3.82	459	47	113	36	---	631	143	265	2.20	366
1967-68---	25,447	1,257,600	49.4	85	12,121	3.81	462	48	120	34	134	667	149	271	2.27	395
1968-69---	25,208	1,271,983	50.5	85	12,223	3.80	465	49	---	33	132	700	146	266	2.21	434
1969-70---	23,130	1,227,860	53.1	85	12,428	3.79	471	50	124	32	129	736	153	273	2.23	463
1970-71---	22,824	1,240,414	54.3	85	12,659	3.77	477	51	116	33	120	767	165	287	2.30	480
1971-72---	20,987	1,211,464	57.7	85	12,775	3.75	479	52	116	30	122	791	174	301	2.39	490
1972-73---	22,628	1,322,782	58.5	85	12,801	3.76	481	52	118	30	113	821	187	321	2.54	500
1973-74---	20,083	1,217,462	60.6	85	12,604	3.74	472	51	118	29	116	989	262	422	3.40	567
1974-75---	20,444	1,297,541	63.5	85	13,024	3.76	489	51	123	29	110	1,114	318	527	4.11	567
1975-76---	20,470	1,318,140	64.4	86	13,326	3.74	498	52	126	28	113	1,229	315	557	4.23	672
1976-77---	17,642	1,210,810	68.6	86	13,849	3.75	519	55	129	28	112	1,371	358	609	4.46	762
1977-78---	18,392	1,299,256	70.6	86	13,978	3.71	518	57	126	28	113	1,404	355	612	4.44	792
1978-79---	18,587	1,310,083	70.5	86	14,129	3.70	522	58	126	30	109	1,555	372	629	4.49	927
1979-80---	18,473	1,282,145	69.4	86	14,227	3.69	525	59	128	30	107	1,750	411	677	4.75	1,073
1980 -----	18,272	1,280,895	70.1	86	14,359	3.69	530	59	126	31	87	1,851	437	715	4.90	1,136

[1] Dashes indicate data unavailable.

[2] Prior to 1952, individual feeds were not reported. Only cows and herds from States reporting feeding information were included.

[3] National test year changed in fall of 1980 to be the calendar year. Data included are for records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 14.--Summary of cow-year totals and averages for all nonofficial herd records, 1962-80[1]

Test years	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
1962-63-----	14,761	423,545	28.7	--	10,606	3.73	396
1963-64-----	13,574	385,493	28.4	--	10,885	3.71	404
1964-65-----	18,409	559,608	30.4	--	11,402	3.71	423
1965-66-----	19,172	598,133	31.2	--	11,472	3.70	425
1966-67-----	17,912	575,816	32.1	--	11,607	3.72	432
1967-68-----	17,318	592,647	34.2	84	11,847	3.72	441
1968-69-----	17,908	614,939	34.3	84	11,932	3.72	444
1969-70-----	16,971	611,819	36.1	84	12,185	3.72	453
1970-71-----	16,569	612,080	36.9	84	12,413	3.71	460
1971-72-----	16,107	618,088	38.4	84	12,544	3.74	466
1972-73-----	16,183	631,269	39.0	84	12,488	3.75	468
1973-74-----	16,037	639,964	39.9	85	12,353	3.75	463
1974-75-----	14,704	610,910	41.5	85	12,503	3.80	475
1975-76-----	16,784	753,089	44.9	85	13,104	3.79	497
1976-77-----	17,662	815,988	46.2	85	13,539	3.76	509
1977-78-----	18,675	891,738	47.8	85	13,771	3.75	516
1978-79-----	19,248	933,631	48.5	85	13,847	3.77	522
1979-80-----	19,328	953,595	49.3	85	13,969	3.77	527
1980--------	19,617	980,870	50.0	85	14,080	3.76	529

[1] Dashes indicate data unavailable.

Table 15.--Summary of cow-year totals and averages for herds on nonofficial test with feeding information reported, 1962-80[1]

Test years	Herds	Cow-years	Cows per herd	Days in milk	Milk	Fat	Fat	Conc	Succ forage	Dry forage	Pasture days	Value of product	Cost of conc	Feed cost	Feed cost/ cwt milk	Income over feed cost
	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
1962-63-----	4,165	136,781	32.8	83	10,785	3.72	402	37	83	46	147	460	113	219	2.03	241
1963-64-----	3,033	80,172	26.4	83	10,987	3.74	411	40	80	44	143	427	103	204	1.86	223
1964-65-----	6,355	197,385	31.0	84	11,470	3.72	427	41	89	44	---	486	119	228	1.99	258
1965-66-----	7,096	224,616	31.6	84	11,574	3.72	430	42	95	42	---	499	121	237	2.05	262
1966-67-----	7,537	243,943	32.4	84	11,645	3.72	433	43	98	43	---	563	130	242	2.08	321
1967-68-----	5,928	212,380	35.8	84	11,834	3.72	440	44	103	40	130	615	142	259	2.21	357
1968-69-----	7,614	263,703	34.6	84	11,953	3.71	443	46	---	41	123	633	133	243	2.05	391
1969-70-----	7,134	259,195	36.3	84	12,102	3.69	446	47	104	40	116	666	139	249	2.08	417
1970-71-----	6,792	254,890	37.5	84	12,292	3.68	452	48	93	39	106	696	147	258	2.11	439
1971-72-----	6,324	246,148	38.9	84	12,327	3.67	453	49	90	38	106	709	152	265	2.17	444
1972-73-----	6,570	257,026	39.1	84	12,214	3.71	453	49	94	38	96	728	156	277	2.30	450
1973-74-----	6,125	247,527	40.4	84	12,151	3.69	448	48	94	38	97	899	217	367	3.05	533
1974-75-----	5,562	234,692	42.2	84	12,303	3.72	458	47	103	38	90	967	271	478	3.93	489
1975-76-----	7,079	326,135	46.1	85	12,980	3.71	481	49	110	37	92	1,149	283	540	4.20	610
1976-77-----	5,605	280,566	50.1	85	13,166	3.71	488	50	112	33	95	1,266	315	563	4.32	703
1977-78-----	5,876	300,951	51.2	85	13,448	3.68	495	51	116	32	94	1,307	311	569	4.27	738
1978-79-----	6,014	309,028	51.4	85	13,695	3.69	505	53	118	33	84	1,473	326	581	4.27	891
1979-80-----	6,173	320,172	51.9	85	13,864	3.65	506	53	120	33	83	1,659	364	622	4.52	1,037
1980--------	6,428	337,846	52.6	85	13,945	3.65	509	53	120	34	76	1,748	382	648	4.66	1,100

[1] Dashes indicate data unavailable.

Table 16.--Comparison of production of cows on official test, nonofficial test, and all other cows, 1962-80

Test years[1]	Official[2]				Nonofficial[2]				All other cows[3] [4]			Superiority of official cows		Superiority of nonofficial cows	
	Herds	Cow-years	Milk	Fat	Herds	Cow-years	Milk	Fat	Cow-years[5]	Milk	Fat	Milk	Fat	Milk	Fat
	Number	Number	Lb	Lb	Number	Number	Lb	Lb	Number	Lb	Lb	Lb	Lb	Lb	Lb
1962-63--	41,937	2,006,534	11,286	434	25,376	726,478	10,606	396	13,817,988	6,844	255	4,442	179	3,762	141
1963-64--	40,670	2,010,144	11,685	447	25,598	752,229	10,885	404	13,206,127	7,148	263	4,537	184	3,737	141
1964-65--	40,075	2,087,581	11,976	457	26,604	818,406	11,402	423	12,409,013	7,353	270	4,623	187	4,049	153
1965-66--	38,879	2,058,592	12,127	462	26,259	839,839	11,472	425	11,613,569	7,530	276	4,597	186	3,942	149
1966-67--	37,683	2,098,919	12,307	468	25,439	825,127	11,607	432	10,818,954	7,756	292	4,551	176	3,851	140
1967-68--	36,869	2,131,929	12,397	471	25,143	847,485	11,847	441	10,144,086	8,035	292	4,362	179	3,812	149
1968-69--	35,617	2,138,953	12,553	476	24,359	842,330	11,932	444	9,588,217	8,319	311	4,234	165	3,613	133
1969-70--	34,308	2,122,011	12,750	483	23,281	839,343	12,185	453	9,101,646	8,701	315	4,049	168	3,484	138
1970-71--	33,996	2,218,402	13,000	489	22,581	836,751	12,413	460	8,853,847	8,848	320	4,152	169	3,565	140
1971-72--	33,197	2,244,685	13,226	496	21,345	805,555	12,544	466	8,725,760	9,135	332	4,091	164	3,409	134
1972-73--	33,578	2,359,611	13,287	499	20,895	806,270	12,488	468	8,456,119	9,155	332	4,132	167	3,333	136
1973-74--	33,146	2,416,669	13,163	493	19,738	783,195	12,353	463	8,097,136	9,047	328	4,116	165	3,306	135
1974-75--	32,222	2,432,961	13,421	505	18,112	749,807	12,503	475	8,037,232	9,146	332	4,275	173	3,357	143
1975-76--	32,232	2,438,365	13,632	511	20,010	945,101	13,104	497	7,703,534	9,248	336	4,384	175	3,856	161
1976-77--	33,755	2,581,164	14,435	539	21,000	1,006,359	13,539	509	7,443,477	9,452	342	4,983	197	4,087	167
1977-78--	34,971	2,704,064	14,631	542	22,768	1,159,776	13,771	516	7,075,160	9,592	341	5,039	201	4,179	175
1978-79--	36,105	2,792,175	14,644	542	22,745	1,201,500	13,847	522	6,845,325	9,434	344	5,210	198	4,413	178
1979-80--	37,526	2,966,558	14,786	547	22,943	1,225,311	13,969	527	6,882,131	10,247	369	4,539	178	3,722	158
1980-----	39,524	3,197,353	14,960	553	23,451	1,282,715	14,080	529	6,654,932	9,968	359	4,992	194	4,112	170

[1] National test year changed in fall of 1980 to be the calendar year. Data included are for records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

[2] Number of herds and cow-years is enrollment Jan. 1 of second year through 1979-80, and for 1981 in testing year 1980 as reported in the annual participation reports. Number of all cows used in this table included Puerto Rico and Virgin Islands for first time in 1979-80. Figures for enrollment for 1978-79 are different from those in 1979 Participation Report because of a reporting error. Production is from these herd average reports.

[3] Derived from national cow population and production figures, excluding heifers not fresh. See DHI Ltr. 55(2) for years before 1979; from 1979, from successive February issues of "Milk Production" and "Cattle," Economics, Statistics, and Cooperatives Service, USDA.

[4] See DHI Ltr. 55(2) for calculation of milk production before 1975-76. Beginning with 1975-76, production values for cows on all testing plans that include butterfat testing were subtracted from national values.

[5] Since 1969-70, cow-years were calculated by subtracting Jan. 1 enrollment of tested cows from Jan. 1 estimate of all cows.

Table 17.--Production and value of product for all national milk cows, 1940-80[1] [2]

Year	Milk cows[3]		Production per cow			Total milk produced	Total fat produced	Total farm value of milk produced
	Avg. for yr	Dec. avg.	Milk	Fat	Fat			
	Thousands	Thousands	Lb	Pct	Lb	Mil lb	Mil lb	1,000 dol
1940---	23,671	---	4,622	3.97	183	109,412	4,343	1,930,935
1941---	24,288	---	4,738	3.97	188	115,088	4,571	2,364,931
1942---	25,027	---	4,736	3.97	188	118,533	4,704	2,867,340
1943---	25,451	---	4,598	3.97	183	117,017	4,651	3,464,864
1944---	25,597	---	4,572	3.98	182	117,023	4,657	3,567,852
1945---	25,033	---	4,787	3.98	190	119,828	4,764	3,673,034
1946---	24,089	---	4,886	3.97	194	117,697	4,677	4,512,653
1947---	23,329	---	5,007	3.97	199	116,814	4,639	4,866,495
1948---	22,336	---	5,044	3.97	200	112,671	4,478	5,295,194
1949---	22,024	---	5,272	3.96	209	116,103	4,595	4,488,255
1950---	21,944	---	5,314	3.96	210	116,602	4,618	4,431,995
1951---	21,505	---	5,333	3.93	210	114,681	4,509	5,108,110
1952---	21,338	---	5,374	3.90	210	114,671	4,476	5,425,543
1953---	21,691	---	5,542	3.87	215	120,221	4,655	5,101,819
1954---	21,581	---	5,657	3.86	219	122,094	4,717	4,757,279
1955---	21,044	---	5,842	3.84	225	122,945	4,726	4,834,842
1956---	20,501	---	6,090	3.82	233	124,860	4,773	5,075,316
1957---	19,774	---	6,303	3.81	240	124,628	4,744	5,166,860
1958---	18,711	---	6,585	3.78	249	123,220	4,658	5,037,729
1959---	17,901	---	6,815	3.76	256	121,989	4,588	5,037,223
1960---	17,515	---	7,029	3.76	264	123,109	4,628	5,158,116
1961---	17,243	---	7,290	3.74	273	125,707	4,715	5,296,024
1962---	16,842	---	7,496	3.74	280	126,251	4,718	5,182,148
1963---	16,260	---	7,700	3.71	286	125,202	4,649	5,159,474
1964---	15,677	---	8,099	3.70	300	126,967	4,699	5,304,899
1965---	14,953	14,526	8,305	3.70	307	124,180	4,592	5,296,774
1966---	14,071	13,756	8,522	3.69	314	119,912	4,426	5,801,039
1967---	13,415	13,139	8,851	3.69	327	118,732	4,377	6,005,639
1968---	12,632	12,571	9,135	3.67	335	117,225	4,305	6,206,150
1969---	12,307	12,113	9,434	3.67	346	116,108	4,264	6,434,834
1970---	12,000	11,916	9,751	3.66	357	117,007	4,284	6,757,294
1971---	11,839	11,782	10,015	3.66	367	118,566	4,344	7,034,801
1972---	11,700	11,630	10,259	3.67	377	120,025	4,410	7,361,435
1973---	11,413	11,304	10,119	3.66	370	115,491	4,225	8,331,450
1974---	11,230	11,215	10,293	3.66	377	115,586	4,238	9,723,186
1975---	11,139	11,074	10,360	3.68	381	115,398	4,240	10,198,831
1976---	11,032	11,003	10,894	3.66	399	120,180	4,402	11,706,043
1977---	10,945	10,899	11,206	3.65	410	122,654	4,481	12,023,440
1978---	10,803	10,792	11,243	3.67	412	121,461	4,455	12,956,601
1979---	10,743	10,772	11,488	3.66	421	123,411	4,518	14,949,279
1980---	10,815	10,872	11,875	3.65	434	128,425	4,692	16,883,401

[1] Dashes indicate data not collected or used before first appearance in table.

[2] Data through 1959 obtained from Statistical Bulletin 303, Economic Research, 1962; for 1960 through 1964, from "Agricultural Statistics," 1971, p. 381; for 1965 through 1969, from Statistical Bulletin 509, Statistical Research Service; for 1970 through 1974, from Statistical Bulletins 589 and 591, Economics, Statistics, and Cooperatives Service(ESCS,USDA); for 1975 through 1978, from Statistical Bulletin 651, ESCS. Preliminary data for cow numbers and production for 1979 and 1980 from successive February issues of "Milk Production," ESCS. Preliminary data for fat production and total farm value of milk produced from "Milk Production, Disposition, Income," ESCS, published in May each year. Final estimates are published at approximately 5-year intervals.

[3] Excludes data from Puerto Rico and Virgin Islands.

USDA SUMMARY OF 1980 U.S. GOAT HERD AVERAGES

By George R. Wiggans[1]

State and national summaries of dairy goat herd averages for milk and fat production have been computed by the U.S. Department of Agriculture (USDA). The averages are from herds that (1) were enrolled in official and nonofficial Dairy Herd Improvement (DHI) plans during 1980, (2) had been on test for at least 365 days prior to their last sample day on or before December 31, 1980, and (3) had does that averaged more than 40 percent days in milk and more than 500 pounds of milk. The percent days in milk is a measure of the proportion of the herd milking and can be affected by reproductive problems, herd turnover rate, and length of dry periods. About 97 percent of the herds summarized were in official test plans: 20 percent in Official DHI and 77 percent in Dairy Herd Improvement Registry (DHIR).

Data in table 1 show that in 1980 there were 11,001.8 doe-years (total days on test for all does divided by 365 days) in 972 herds. Twenty-five herds were excluded by the milk-production or percent-days-in-milk requirement. The values for does per herd were calculated by dividing doe-years by herds for each State and the United States. Nationally the average production on a doe-year basis was 1,643 pounds of milk and 62 pounds of fat. The test year for herd average records was changed to correspond to the calendar year. This change resulted in an overlap of approximately 4 months for the 1979-80 and 1980 test years. The number of herds decreased since the 1979-80 test year by 76 and the number of doe-years by 451.5 The average number of does per herd was 11.3, up since the 1979-80 test year. The increase over the 1979-80 test year's production average was 15 pounds of milk and 1 pound of fat.[2]

Table 2 presents the distribution of herds by does per herd. Most dairy goat herds were small; almost 67 percent had 10 or fewer does per herd. The most common herd size was 5.1 to 10 does per herd, and the largest total number of doe-years occurred in herds of that size. The 18 herds with more than 50 does per herd (1.9 percent) contained 17.1 percent of the doe-years. The largest herd had 641.7 doe-years. Table 3 gives the distribution of herds by percent days in milk. About 66 percent of the herds had between 71 and 90 percent days in milk. Table 4 shows the distribution of herds by milk production level. Twenty herds had milk production above 3,000 pounds. These herds were below average in number of does and above average in percent days in milk. The highest average milk production was 3,815 pounds by a Saanen herd. The distribution of herds by fat production is in table 5. The highest fat production was 194 pounds by a herd without breed identification.

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[2] U.S. Department of Agriculture. USDA summaries of 1979-80 goat herd averages. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(7), pp. 22-25. 1980.

The average production by breed is in table 6. A single breed was indicated in about 65 percent of the herds. Of the five major breeds, Saanens had the highest milk production, and Nubians had the highest fat production.

Table 1.--State and national doe-year totals and averages, 1980

State	Herds	Doe-years	Does per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
Alabama----------	6	38.9	6.5	70	1,345	4.2	57
Arizona----------	33	253.6	7.7	74	1,705	3.9	67
Arkansas---------	19	283.6	14.9	70	1,321	3.5	46
California-------	224	3,329.0	14.9	74	1,675	3.6	61
Colorado---------	39	256.9	6.6	75	1,814	3.8	69
Connecticut------	14	146.7	10.5	81	1,782	3.9	70
Delaware---------	2	10.2	5.1	76	1,259	4.7	59
Florida----------	10	146.4	14.6	69	1,144	3.4	39
Georgia----------	11	57.0	5.2	70	1,462	4.4	64
Idaho------------	2	13.8	6.9	85	1,677	3.8	63
Illinois---------	7	97.3	13.9	79	1,876	3.7	70
Indiana----------	11	88.5	8.0	76	1,481	3.8	57
Iowa-------------	15	242.6	16.2	73	1,738	3.6	62
Kansas-----------	7	46.6	6.7	75	1,572	4.2	65
Louisiana--------	2	10.9	5.4	92	1,771	4.9	87
Maine------------	32	307.7	9.6	81	1,587	3.7	58
Maryland---------	28	229.8	8.2	73	1,582	3.5	56
Massachusetts----	21	137.5	6.5	79	1,636	3.8	61
Michigan---------	8	136.0	17.0	75	1,738	4.1	71
Minnesota--------	14	173.8	12.4	82	1,786	3.9	69
Missouri---------	17	292.3	17.2	73	1,589	3.6	58
Montana----------	7	25.6	3.7	79	2,195	3.7	81
Nebraska---------	2	6.6	3.3	73	1,651	3.3	54
Nevada-----------	12	79.8	6.6	71	1,778	3.6	63
New Hampshire----	14	71.9	5.1	82	2,071	3.5	73
New Jersey-------	10	171.8	17.2	82	1,773	3.6	63
New Mexico-------	12	92.5	7.7	75	1,894	3.5	67
New York---------	45	377.7	8.4	79	1,851	3.8	70
North Carolina---	8	86.3	10.8	82	1,774	3.4	61
Ohio-------------	35	250.4	7.2	71	1,414	3.9	56
Oklahoma---------	15	273.5	18.2	73	1,551	3.8	59
Oregon-----------	123	1,074.7	8.7	75	1,702	4.2	71
Pennsylvania-----	14	217.2	15.5	71	1,414	3.8	54
Rhode Island-----	7	90.2	12.9	82	1,660	3.5	59
South Carolina---	2	34.8	17.4	80	1,615	3.7	61
Tennessee--------	10	83.0	8.3	76	1,719	3.7	63
Texas------------	22	298.2	13.6	72	1,457	4.3	63
Vermont----------	5	120.2	24.0	83	1,727	3.5	61
Virginia---------	16	130.8	8.2	75	1,649	3.9	65
Washington-------	47	475.7	10.1	75	1,780	3.9	69
West Virginia----	1	8.6	8.6	72	1,383	3.3	46
Wisconsin--------	43	733.2	17.1	79	1,413	3.7	52
United States----	972	11,001.8	11.3	75	1,643	3.8	62

Table 2.--Distribution of goat herds by does per herd, 1980

Does per herd	Herds		Doe-years	
Number	Number	Pct	Number	Pct
Less than 5.1------	290	29.8	1,023.4	9.3
5.1 - 10.0------	360	37.1	2,593.0	23.6
10.1 - 15.0------	139	14.3	1,687.3	15.3
15.1 - 20.0------	82	8.4	1,401.0	12.7
20.1 - 25.0------	31	3.2	700.9	6.4
25.1 - 30.0------	23	2.4	624.2	5.7
30.1 - 35.0------	11	1.1	347.8	3.2
35.1 - 40.0------	9	.9	345.1	3.1
40.1 - 45.0------	5	.5	214.4	1.9
45.1 - 50.0------	4	.4	182.6	1.7
More than 50.0------	18	1.9	1,882.1	17.1
Total---------------	972	100.0	11,001.8	100.0

Table 3.--Distribution of goat herds by percent days in milk, 1980

Days in milk	Herds	
Pct	Number	Pct
41 - 50---------------------	20	2.1
51 - 60---------------------	67	6.9
61 - 70---------------------	181	18.6
71 - 80---------------------	324	33.3
81 - 90---------------------	318	32.7
91 - 100---------------------	62	6.4
Total------------------------	972	100.0

Table 4.--Distribution of goat herds by milk production, 1980

Milk	Herds	
Lb	Number	Pct
501 - 1,000--	46	4.7
1,001 - 1,500--	279	28.7
1,501 - 2,000--	360	37.0
2,001 - 2,500--	215	22.1
2,501 - 3,000--	52	5.4
More than 3,000--	20	2.1
Total------------	972	100.0

Table 5.--Distribution of goat herds by fat production, 1980

Fat	Herds	
Lb	Number	Pct
Less than 26---	2	0.2
26 - 50---	176	18.1
51 - 75---	504	51.9
76 - 100---	237	24.4
101 - 125---	46	4.7
More than 125---	7	.7
Total-----------	972	100.0

Table 6.--Average milk and fat production by breed, 1980

Breed	Herds	Doe-years	Milk	Fat	
	Number	Number	Lb	Lb	Pct
Alpine----------	179	1,797.0	1,851	67.6	3.7
Experimental----	4	26.0	2,073	76.8	3.7
La Mancha-------	28	260.2	1,629	61.4	3.8
Nubian----------	278	2,278.9	1,517	68.1	4.5
Saanen----------	61	558.2	1,916	66.6	3.5
Toggenburg------	78	773.5	1,903	63.6	3.3
Mixed[1]----------	344	5,308.0	1,558	56.4	3.6
All breeds------	972	11,001.8	1,643	61.8	3.8

[1] Includes herds with breed not reported.

USDA SUMMARY OF 1980 MEXICAN COW HERD AVERAGES

By Pedro G. Cisneros, George R. Wiggans, and Gerald J. King[1]

Milk production averages were computed for Mexico on a State and national basis by the U.S. Department of Agriculture (USDA). Data were from dairy cows in 137 Mexican herds that have records processed at U.S. dairy records processing centers. The test year for these herds ended in calendar year 1980. There were 135 Holstein herds, 1 Jersey herd, and 1 herd with more than 1 breed. The frequencies of herds by type of testing plan were--

DHIR	131
Official DHI	3
Owner-Sampler	2
Alternate AM/PM	1

The testing program was conducted by Holstein-Friesian de México, the Mexican Holstein association, and approximately 5 percent of the cows in Mexico were enrolled.[2]

Herd average records represented actual production. The average was the estimated herd production for 365 days divided by the number of cow-years on test (the total number of days on test for all cows in the herd divided by 365 days). These production averages represented the actual amount of milk produced and were not adjusted for such environmental influences as age or season of calving. State and national averages were weighted by cow-years per herd and, therefore, represented the average cow, not the average herd. All values were reported in kilograms, the yield measure used in Mexico.

Averages from 47,159.1 cow-years are in table 1, with 16 States represented. Guanajuato, which is northwest of Mexico City, accounted for 24 percent of the herds and approximately 17 percent of the cow-years in the testing program; the neighboring State of Querétaro accounted for 15 percent of the herds and approximately 16 percent of the cow-years in the testing program. Herds ranged from 5.8 to 2,199.5 cow-years, with an average of 344.2 cow-years. Average milk production was 5,740 kg. Baja California Norte, which borders California, had the highest production average with 6,495 kg of milk. Fat percentage was not measured in these herds. The percent days in milk was computed from the number of cow-days in milk divided by the number of cow-days on test and is a measure of the proportion of the herd that was milking.

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[2] Holstein-Friesian de México, A.C. Libro suplementario de registro, Cir. No. 3, Enero 1980. Mex. Holstein 11(86): 20. 1980.

Percent days in milk by herd ranged from 74 to 91 percent, with an average of 85 percent. Reproductive problems, replacement rate, and length of dry periods affected percent days in milk.

Table 2 shows the distribution of herds and cow-years by cow-years per herd. Approximately 46 percent of the herds had between 101 and 400 cow-years, and approximately 33 percent of the herds were larger than 400 cow-years. The number of cow-years increased as herds increased to 501-600 cow-years and then decreased with larger herds. Approximately 49 percent of the cow-years occurred in herds of 301-700 cow-years per herd, and the rest were divided evenly between the larger and smaller herds. In contrast, the number of herds decreased as herd size increased.

Table 3 shows the distribution of herds by average production. Production by herd ranged from 3,360 to 7,592 kg. Most of the herds (68 percent) averaged between 5,001 and 6,500 kg.

The data in this summary represent only information from herds that are enrolled in the testing program. These are the larger, more productive herds in Mexico.

Table 1.--Herds and milk production by State from Mexican herd average records, 1980

State	Herds	Cow-years per herd	Days in milk	Milk
	Number	Number	Pct	Kg
Aguascalientes----------	4	140.5	84	6,227
Baja California Norte---	11	301.2	84	6,495
Chihuahua---------------	5	641.6	83	6,043
Coahuila----------------	8	548.5	85	5,950
Durango-----------------	13	468.1	85	6,287
Guanajuato--------------	33	238.1	84	5,607
Hidalgo-----------------	7	372.6	87	5,582
Jalisco-----------------	3	374.5	82	5,307
México------------------	13	437.2	86	5,350
Michoacán---------------	7	140.4	84	5,179
Puebla------------------	6	174.9	86	4,661
Querétaro---------------	21	359.6	86	5,593
Sinaloa-----------------	1	223.9	83	4,089
Sonora------------------	1	1,239.6	84	5,374
Tlaxcala----------------	3	236.5	84	4,794
Zacatecas---------------	1	573.6	85	6,493
Overall[1]----------------	137	344.2	85	5,740

[1] Values are on a country, not State, basis.

Table 2.--Distribution of herds and cow-years by cow-years per herd, 1980

Cow-years per herd	Herds		Cow-years	
	Number	Pct	Number	Pct
Less than 101-----	29	21.2	1,760.4	3.7
101 - 200-----	29	21.2	4,294.1	9.1
201 - 300-----	17	12.4	4,154.8	8.8
301 - 400-----	17	12.4	5,698.4	12.1
401 - 500-----	12	8.7	5,443.5	11.5
501 - 600-----	11	8.0	5,998.7	12.7
601 - 700-----	9	6.6	5,826.8	12.4
701 - 800-----	3	2.2	2,194.2	4.7
801 - 900-----	3	2.2	2,488.5	5.3
901 - 1,000-----	2	1.5	1,882.6	4.0
1,001 - 1,100-----	2	1.5	2,126.3	4.5
1,101 - 1,300-----	1	.7	1,239.6	2.6
More than 1,300-----	2	1.4	4,051.2	8.6
Total---------------	137	100.0	47,159.1	100.0

Table 3.--Distribution of herds by average milk production, 1980

Milk	Herds	
Kg	Number	Pct
Less than 3,501-------------	1	0.7
3,501 - 4,000-------------	5	3.6
4,001 - 4,500-------------	9	6.6
4,501 - 5,000-------------	14	10.2
5,001 - 5,500-------------	34	24.8
5,501 - 6,000-------------	27	19.7
6,001 - 6,500-------------	32	23.4
6,501 - 7,000-------------	12	8.8
7,001 - 7,500-------------	2	1.5
More than 7,500-------------	1	.7
Total----------------------	137	100.0

ERROR COUNTS FOR 305-DAY LACTATION RECORDS, 1980

By George R. Wiggans and Gerald J. King[1]

The Animal Improvement Programs Laboratory (AIPL) receives lactation records for cows in production testing plans of the National Cooperative Dairy Herd Improvement Program. Records from official plans are used in computing genetic evaluations of bulls and cows and in research. The in-progress and the 305-day records contribute to genetic evaluations; the latter include terminated records of less than 305 days. In-progress records, which provide information on a cow's production early in lactation, subsequently are replaced by 305-day records. Only information from 305-day records, which are the permanent records of a cow's lactations, is included in this report.

Table 1 gives the number of records excluded from the July 1980 and January 1981 Sire Summaries by State. Counts from the two Summaries were combined because the records were received primarily in 1980. The number of records received from different States may have exceeded the number of cows on test because (1) the same lactation was represented by more than one record when corrected records were submitted, (2) a cow completed two 305-day records in one 12-month period, or (3) a cow's ownership changed. Different editing practices by the dairy records processing centers also have affected the proportion of records with a termination code of 9. (This code indicates that the records should not be used for genetic evaluations because production information is not reliable.)

The number of official 305-day records excluded after comparison with previously submitted records is included in tables 1 and 2 under the column heading "Conflict." This count was obtained by selecting current 305-day records from the file of excluded records. This file also contained replacements, corrections, and records in progress. Therefore, some records submitted for previous runs may have been included.

Table 2 summarizes the data for the States in table 1 with the most official records. The number of errors varied considerably among individual States. Of the 10 States with the most official records, 3 had less than 40.0 percent and 2 had more than 60.0 percent of their records eliminated. The national average was 50.3 percent eliminated.

Among official records, missing sire identification was the major reason the records were excluded. Sire identification during 1980 has improved. The proportion of records excluded because of missing sire identification decreased from 42.5 percent in 1979 to 41.6 percent in 1980.

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Summary

Official 305-day records provide the basic information for the genetic improvement program. Only properly identified records can contribute to genetic evaluations. Additional information from records with complete animal identification would improve the accuracy of genetic evaluations and permit computation of indexes for more cows.

When a record is submitted with an error, such as missing sire identification, only that record is eliminated. However, when a record is compared with other records on the same cow and an error such as different birth dates occurs, all records for that cow are eliminated. In both instances, the error usually can be corrected by either the dairyman or those assisting him, and then the corrected record can contribute to sire and cow evaluation.

Table 1.--Disposition of 305-day records by State, 1980

State[1]	Records			Official records eliminated because of--				Official 305-day records availabile for Sire Summary	
	Total	Nonofficial[2]	Official	Termination code 9[3] [4]	Error[5]	Zero sire No.	Conflict[6]		
	Number	Number	Number	Number	Number	Number	Number	Number	Pct
Alabama----------	27,004	1,250	25,754	363	10	16,586	380	8,415	32.7
Alaska-----------	474	428	46	1	0	0	1	44	95.7
Arizona----------	47,408	1,291	46,117	1,104	651	32,695	1,308	10,357	22.5
Arkansas---------	14,130	2,960	11,170	1,942	10	4,385	353	4,477	40.1
California-------	488,867	38,141	450,726	20,375	6,095	251,115	12,441	160,797	35.7
Colorado---------	30,606	4,562	26,044	1,997	1,952	10,052	1,534	10,507	40.3
Connecticut------	32,770	4,591	28,179	8	17	8,386	1,070	18,698	66.4
Delaware---------	6,673	1,068	5,605	1	4	1,867	720	3,013	53.8
Florida----------	49,183	33,719	15,464	607	47	8,524	488	5,798	37.5
Georgia----------	50,818	15,967	34,851	651	34	20,726	922	12,518	35.9
Hawaii-----------	7,355	1,746	5,609	72	360	3,458	35	1,684	30.0
Idaho------------	50,336	5,214	45,122	4,601	3,068	21,844	2,077	13,510	29.9
Illinois---------	82,469	10,819	71,650	5,837	320	25,570	2,562	37,348	52.1
Indiana----------	62,073	7,990	54,083	747	172	19,547	2,085	31,532	58.3
Iowa-------------	134,464	38,722	95,742	17,571	306	34,040	3,513	40,299	42.1
Kansas-----------	59,224	6,001	53,223	4,856	112	19,668	2,048	26,527	49.8
Kentucky---------	34,386	4,139	30,247	774	29	15,570	922	12,952	42.8
Lousiana---------	28,375	383	27,992	515	27	15,224	849	11,387	40.7
Maine------------	31,586	5,173	26,413	7	32	5,525	959	19,890	75.3
Maryland---------	54,324	3,351	50,973	1,152	1,001	13,794	3,141	31,884	62.6
Massachusetts----	24,166	2,458	21,708	1	17	4,424	823	16,443	75.7
Michigan---------	171,544	49,382	122,162	457	359	59,689	5,838	55,820	45.7
Minnesota--------	316,207	105,982	210,225	13,176	48	72,937	6,054	118,010	56.1
Mississippi------	22,748	276	22,472	264	11	14,353	560	7,284	32.4
Missouri---------	66,375	8,609	57,766	7,329	112	24,603	1,791	23,921	41.4
Montana----------	7,374	1,108	6,266	566	2,378	1,337	193	1,794	28.6
Nebraska---------	35,208	3,125	32,083	2,360	29	15,736	868	13,085	40.8
Nevada-----------	10,126	168	9,958	1,452	1,273	5,394	134	1,705	17.1
New Hampshire----	17,832	2,701	15,131	6	9	3,172	493	11,451	75.7
New Jersey-------	18,374	2,056	16,318	2	15	4,238	428	11,635	71.3
New Mexico-------	27,102	774	26,328	2,498	1,741	13,476	1,011	7,603	28.9
New York---------	463,911	207,616	256,295	53	246	62,341	7,659	185,996	72.6
North Carolina---	70,977	3,963	67,014	1,228	87	32,362	1,988	31,349	46.8
North Dakota-----	11,491	1,702	9,789	1,698	5	4,315	337	3,435	35.1
Ohio-------------	124,025	26,532	97,493	3,667	2,979	29,666	4,139	57,038	58.5
Oklahoma---------	30,828	1,682	29,146	4,590	38	14,520	874	9,123	31.3
Oregon-----------	53,469	5,616	47,853	806	355	25,826	1,699	19,155	40.0
Pennsylvania-----	284,123	84,320	199,803	3,662	2,709	42,940	7,042	143,435	71.8
Puerto Rico------	21,974	11	21,963	508	39	18,864	144	2,408	11.0
Rhode Island-----	1,613	48	1,565	0	0	464	25	1,076	68.8
South Carolina---	32,160	1,741	30,419	637	42	14,234	828	14,678	48.3
South Dakota-----	32,437	17,130	15,307	1,455	104	7,093	451	6,200	40.5
Tennessee--------	53,132	236	52,896	545	20	32,039	827	19,465	36.8
Texas------------	68,582	6,803	61,779	1,476	93	37,470	1,569	21,171	34.3
Utah-------------	36,035	1,872	34,163	1,806	1,515	16,947	1,269	12,625	37.0
Vermont----------	84,952	21,797	63,155	2	94	16,605	1,865	44,589	70.6
Virginia---------	89,450	1,955	87,495	1,269	90	29,693	2,885	53,560	61.2
Washington-------	103,538	12,622	90,916	2,920	2,110	50,916	2,665	32,307	35.5
West Virginia----	16,034	982	15,052	3	0	5,252	435	9,360	62.2
Wisconsin--------	586,601	262,213	324,388	13,890	10,709	121,481	7,298	171,058	52.7
Wyoming----------	2,954	121	2,833	382	591	832	142	887	31.3
United States----	4,177,867	1,023,116	3,154,751	131,889	42,065	1,311,795	99,742	1,569,303	49.7

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[1] Includes Puerto Rico.

[2] Includes records with invalid identification correction codes.

[3] Includes records unusable for reasons other than termination code 9; e.g., test herd, invalid termination code, or missing or unreasonable birth or calving date.

[4] Values also affected by procedures of individual dairy records processing centers. For example, the New York center submits very few records with termination code 9. In contrast, the Iowa center submits many such records.

[5] Includes records with invalid or blank animal identification or blank production information.

[6] Includes records that conflict with previously submitted records or pedigree data in the Animal Improvement Programs Laboratory file; also includes records having production values outside U.S. Department of Agriculture limits.

Table 2.--Official 305-day records and proportion eliminated for 10 States with most official records, 1980

State	Official records	Official records eliminated because of-- Termination code 9	Error	Zero sire No.	Conflict	Total records eliminated
	Number	Pct	Pct	Pct	Pct	Pct
California------	450,726	4.5	1.3	55.7	2.8	64.3
Wisconsin-------	324,388	4.3	3.3	37.4	2.2	47.2
New York--------	256,295	<.1	.1	24.3	3.0	27.4
Minnesota-------	210,225	6.3	<.1	34.7	2.9	43.9
Pennsylvania----	199,803	1.8	1.4	21.5	3.5	28.2
Michigan--------	122,162	.4	.3	48.9	4.8	54.4
Ohio------------	97,493	3.8	3.1	30.4	4.2	41.5
Iowa------------	95,742	18.4	.3	35.6	3.7	58.0
Washington------	90,916	3.2	2.3	56.0	2.9	64.4
Virginia--------	87,495	1.5	.1	33.9	3.3	38.8
United States---	3,154,751	4.2	1.3	41.6	3.2	50.3

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September 1982

- State and National Standardized Lactation Averages by Breed for Cows on Official Test, Calving in 1979
- Changes in the AIPL Genetic Evaluation Procedures

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Dairy Herd Improvement Letter

STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES BY BREED FOR COWS ON OFFICIAL TEST, CALVING IN 1979

By Rex L. Powell[1]

Dairy records processing centers provide lactation records to USDA for research that includes genetic evaluations. Records only from cows on official test are used in genetic evaluations. Nearly half of the official records are not used because of missing sire identification or failure to pass USDA edits.[2] [3] Most of these unusable records are from grade cows and are not usable because of missing sire identification. The number of records and average standardized production of lactations initiated in 1979 that contributed to genetic evaluations are reported by State in table 1 for Ayrshire, Guernsey, and Holstein cows and in table 2 for Jersey, Brown Swiss, and Milking Shorthorn cows. Records were standardized for age and month of calving[4] and times milked per day.[5] Incomplete records were projected to 305 days.[6] Thus, the averages presented are on a 305-day, two-times-a-day, mature-equivalent basis. This is the second report of lactation averages with incomplete records projected by the factors of Wiggans and Powell.[6] Fat percentages were computed from the average standardized milk and fat yields.

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R. Errors, reasons for termination, and types of test for 305-day lactation records received for the Summer 1978 through Winter 1980 Sire Summaries. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(6), pp. 7-13. 1980.

[3] U.S. Department of Agriculture. Editing of lactation records used in USDA-DHIA genetic evaluations of sires and cows. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS-44-222, 46(6), 32 pp. 1970.

[4] Norman, H. D., Miller, P. D., McDaniel, B. T., and others. USDA-DHIA factors for standardizing 305-day lactation records for age and month of calving. U.S. Dept. Agr. ARS-NE-40, 91 pp. 1974.

[5] U.S. Department of Agriculture. Reducing records to a twice-a-day milking basis. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 48(1), pp. 3-8. 1972.

[6] Wiggans, G. R., and Powell, R. L. Projection factors for milk and fat lactation records. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(1), 15 pp. 1980.

Tables 1 and 2 were compared with corresponding tables for 1978 calvings.[7] The number of records increased by 7 percent over 1978 numbers primarily because of an 8 percent increase for Holstein records. The number of records also increased for Jerseys (6 percent), Brown Swiss (3 percent), and Milking Shorthorns (6 percent). The number of Ayrshire records increased by 2 percent from 1978, following a 2 percent decrease in 1978 compared with 1977 records. The number of Guernsey records declined by 2 percent.

Average milk production increased for all breeds from 82 pounds for Milking Shorthorns to 270 pounds for Holsteins. Average fat yield also increased for all breeds by 4 to 10 pounds. Fat percentage change varied, increasing slightly for Guernseys (0.02), Brown Swiss (0.01), and Milking Shorthorns (0.01) and decreasing slightly for Holsteins (0.01), Jerseys (0.01), and Ayrshires (0.02).

The national averages for alternate years from 1971 through 1979 are given in table 3. The total number of records increased by 39 percent since 1971. Increases were 50 percent for Holsteins and 12 to 15 percent for Jerseys, Brown Swiss, and Milking Shorthorns. Ayrshires essentially have maintained their numbers, whereas Guernseys have decreased by 34 percent. Increases in milk production since 1971 were from 866 (Brown Swiss) to 1,808 pounds (Holsteins). Fat production has increased but not in proportion to milk production because of a decrease in fat percentage since 1971 for all breeds, particularly Jerseys. Changes in numbers of records and averages for particular State and breed combinations may be studied by comparing tables 1 and 2 with tables in the report[7] for 1978 and in corresponding publications for earlier years.

Cows of the Red and White breed are not included in the tables because of small numbers. Nationally, the 924 Red and White cows averaged 15,278 pounds of milk, 3.62 percent fat, and 554 pounds of fat. The averages for 687 cows in 1978 were 15,193 pounds of milk, 3.62 percent fat, and 550 pounds of fat.

Interpretation of changes in average production should be made in view of the many factors that can affect yield. Although genetic change is expected to have a positive effect on yield, feed availability and cost, milk and beef prices, and characteristics of herds entering and leaving official testing programs can affect the averages in either direction.

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[7] Powell, R. L. State and national standardized lactation averages by breed for cows on official test, calving in 1978. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 57(1), pp. 1-4. 1981.

Table 1.--Number of records and State and national standardized lactation averages for Ayrshire, Guernsey, and Holstein cows on official test, calving in 1979[1]

State	Ayrshire				Guernsey				Holstein			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds
Alabama---------	76	12,386	3.61	448	162	10,283	4.23	435	5,203	15,692	3.44	540
Alaska-----------	---	---	---	---	---	---	---	---	43	14,549	3.67	534
Arizona----------	1	11,956	3.85	460	896	11,997	4.43	531	6,949	17,841	3.51	626
Arkansas---------	17	10,669	3.88	414	202	10,798	4.45	480	2,968	15,666	3.40	532
California -------	212	14,193	3.88	551	2,519	12,546	4.52	568	139,196	18,661	3.57	666
Colorado---------	12	10,564	3.75	396	221	10,502	4.55	478	9,085	16,437	3.45	567
Connecticut -----	494	12,112	3.88	470	656	11,271	4.59	517	13,428	16,761	3.61	605
Delaware --------	143	11,696	4.21	492	10	12,264	4.88	599	2,040	17,089	3.57	611
Florida-----------	169	11,164	3.43	383	543	9,330	4.07	380	2,913	15,488	3.31	513
Georgia----------	123	12,934	3.79	490	804	10,861	4.55	494	8,904	15,740	3.53	555
Hawaii -----------	---	---	---	---	---	---	---	---	1,644	16,799	3.05	512
Idaho-------------	58	12,591	3.59	452	352	11,145	4.56	508	10,381	16,873	3.47	586
Illinois-----------	491	12,365	3.92	485	1,534	10,548	4.65	490	31,680	16,226	3.72	604
Indiana-----------	332	12,832	3.91	502	3,045	11,456	4.75	545	23,520	16,581	3.67	609
Iowa-------------	1,339	12,019	3.90	469	1,821	10,696	4.62	495	31,485	15,537	3.66	568
Kansas-----------	529	11,165	3.78	422	526	10,558	4.57	483	24,011	15,575	3.53	550
Kentucky---------	221	11,087	3.74	415	406	9,884	4.59	453	9,630	15,646	3.56	557
Louisiana --------	115	10,918	3.57	390	1,069	10,134	4.27	432	6,285	14,761	3.29	485
Maine------------	441	12,553	3.91	491	267	11,356	4.60	523	14,468	16,791	3.51	589
Maryland---------	543	10,965	3.95	434	1,075	10,593	4.67	495	28,879	16,117	3.63	585
Massachusetts---	561	11,522	3.97	458	325	11,401	4.52	516	11,657	16,495	3.57	588
Michigan---------	130	12,527	3.87	485	1,842	11,677	4.71	549	49,199	17,309	3.66	633
Minnesota--------	1,047	11,811	3.91	462	4,016	10,533	4.70	495	106,857	15,806	3.65	577
Mississippi -------	160	11,682	3.55	415	270	11,382	4.32	491	4,906	15,502	3.38	524
Missouri----------	88	12,416	3.92	487	1,688	10,632	4.62	491	19,107	15,702	3.56	559
Montana ---------	162	15,061	3.75	565	76	13,117	4.86	638	1,438	16,291	3.48	568
Nebraska---------	126	10,285	3.92	403	530	10,454	4.56	476	11,367	15,061	3.58	540
Nevada----------	---	---	---	---	---	---	---	---	1,191	17,531	3.29	576
New Hampshire--	539	13,364	3.90	521	152	10,512	4.40	463	7,596	16,772	3.60	604
New Jersey------	40	11,832	3.79	448	147	11,024	4.69	517	9,173	16,916	3.64	615
New Mexico -----	169	13,855	3.76	521	504	12,401	4.36	540	6,879	17,244	3.50	603
New York--------	3,538	12,772	3.90	498	2,265	11,465	4.57	524	143,082	16,953	3.59	609
North Carolina---	248	13,266	3.68	488	603	10,878	4.58	498	25,697	16,736	3.50	585
North Dakota----	5	12,103	3.90	472	21	9,005	4.58	413	3,239	14,578	3.55	517
Ohio -------------	1,179	12,441	3.86	480	2,802	11,377	4.69	533	45,311	17,193	3.64	627
Oklahoma--------	320	12,270	3.78	464	434	11,006	4.46	491	6,858	16,472	3.51	578
Oregon----------	326	12,509	3.90	487	1,052	11,458	4.64	532	11,934	17,553	3.57	626
Pennsylvania-----	1,446	13,268	3.96	525	4,693	11,403	4.70	536	129,194	16,839	3.67	618
Puerto Rico[2]-----	---	---	---	---	---	---	---	---	1,947	10,895	3.00	326
Rhode Island-----	145	11,845	4.11	486	38	7,787	4.54	354	733	16,022	3.70	592
South Carolina---	---	---	---	---	1,751	11,647	4.63	539	6,645	16,000	3.55	569
South Dakota----	3	9,873	4.14	408	31	10,075	4.86	490	5,598	15,181	3.64	553
Tennessee--------	101	11,843	3.78	447	609	10,759	4.42	476	12,818	16,699	3.50	585
Texas-----------	22	9,747	4.08	397	349	11,660	4.58	534	13,713	16,658	3.50	584
Utah -------------	5	13,602	3.75	510	2	11,341	4.03	457	11,610	17,329	3.41	591
Vermont ---------	1,524	13,054	3.79	495	471	11,779	4.56	537	29,546	16,556	3.56	589
Virginia----------	521	12,942	3.71	480	1,699	10,844	4.55	493	46,428	16,293	3.53	575
Washington ------	413	13,576	4.04	549	2,097	12,460	4.81	600	24,838	18,006	3.56	641
West Virginia----	326	11,464	4.16	477	307	9,242	4.61	426	7,015	15,988	3.47	555
Wisconsin--------	1,005	12,651	3.88	490	6,681	11,352	4.66	530	142,902	16,808	3.74	629
Wyoming---------	1	9,361	4.07	381	16	15,795	4.29	678	806	15,682	3.36	526
United States----	19,466	12,492	3.88	484	51,579	11,231	4.63	519	1,271,996	16,792	3.61	606

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 2.--Number of records and State and national standardized lactation averages for Jersey, Brown Swiss, and Milking Shorthorn cows on official test, calving in 1979[1]

State	Jersey				Brown Swiss				Milking Shorthorn			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds	Number	Pounds	Percent	Pounds
Alabama	2,214	11,851	4.50	534	124	11,968	3.87	463	---	---	---	---
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	1,069	11,568	4.89	566	798	15,355	3.82	587	42	11,713	3.44	403
Arkansas	797	9,575	4.72	452	92	13,810	3.87	535	66	12,586	3.67	461
California	6,911	11,998	5.06	607	734	14,577	4.11	599	124	13,378	3.58	478
Colorado	280	10,906	4.48	488	476	13,486	4.09	552	24	8,183	3.88	318
Connecticut	377	10,802	4.84	523	226	13,490	3.90	526	18	10,772	3.40	366
Delaware	22	10,709	4.55	487	8	15,695	4.03	633	---	---	---	---
Florida	874	10,055	4.42	444	437	12,512	3.62	453	---	---	---	---
Georgia	1,417	10,008	4.84	484	324	13,853	3.96	549	---	---	---	---
Hawaii	---	---	---	---	---	---	---	---	---	---	---	---
Idaho	1,146	10,476	4.86	509	96	14,373	3.87	556	24	11,166	3.42	382
Illinois	1,016	9,331	4.83	450	1,336	13,093	4.05	530	211	11,494	3.62	416
Indiana	1,601	9,990	4.95	494	830	14,224	4.02	571	57	10,721	3.53	379
Iowa	1,971	10,172	4.80	488	2,824	13,260	4.02	533	359	11,001	3.70	407
Kansas	616	9,858	4.67	461	362	12,669	3.90	494	4	12,138	3.42	415
Kentucky	2,072	10,403	4.80	499	266	11,651	3.90	454	19	10,065	3.37	340
Louisiana	2,069	9,875	4.62	456	123	10,185	3.78	385	---	---	---	---
Maine	1,373	11,948	4.75	567	105	12,237	3.97	485	86	9,729	3.53	344
Maryland	519	8,571	4.82	413	274	13,309	3.95	525	42	9,677	3.58	346
Massachusetts	1,154	10,533	4.89	515	56	13,492	3.83	517	36	10,276	3.71	382
Michigan	1,649	10,910	5.01	546	318	13,772	4.08	562	80	12,321	3.44	423
Minnesota	2,158	10,152	4.89	497	1,398	13,152	4.06	534	517	11,998	3.67	440
Mississippi	1,655	10,026	4.49	450	5	10,928	3.97	434	---	---	---	---
Missouri	1,804	10,462	4.74	496	561	12,769	3.98	508	158	10,470	3.68	386
Montana	5	11,473	4.57	525	35	13,763	4.05	558	---	---	---	---
Nebraska	185	9,264	4.65	431	477	12,917	4.13	534	174	9,329	3.79	353
Nevada	418	12,380	4.64	575	1	12,569	3.73	469	---	---	---	---
New Hampshire	1,009	11,102	4.74	526	85	12,933	3.87	500	30	11,013	3.76	414
New Jersey	250	12,589	4.77	600	123	12,988	3.97	515	---	---	---	---
New Mexico	4	11,131	4.77	531	13	11,422	4.22	482	---	---	---	---
New York	4,609	10,774	4.89	527	1,746	14,028	3.97	557	46	12,178	3.61	440
North Carolina	1,868	10,917	4.71	514	287	13,653	4.03	551	---	---	---	---
North Dakota	70	8,863	4.88	433	134	13,404	3.98	533	3	9,543	3.42	327
Ohio	4,787	10,786	5.01	540	1,522	14,678	4.13	606	131	11,782	3.83	452
Oklahoma	648	10,171	4.61	469	329	12,384	3.89	482	217	13,311	3.53	470
Oregon	3,650	11,323	4.98	564	745	13,771	4.04	557	20	10,765	3.44	370
Pennsylvania	4,362	10,770	4.99	538	927	13,808	4.05	559	52	9,718	3.70	360
Puerto Rico[2]	---	---	---	---	5	9,921	2.93	291	---	---	---	---
Rhode Island	2	10,749	3.82	411	3	11,475	3.86	443	---	---	---	---
South Carolina	4,251	11,259	4.86	547	82	13,114	3.72	487	---	---	---	---
South Dakota	116	9,833	5.16	507	296	12,163	4.14	503	97	9,642	3.56	343
Tennessee	4,323	10,944	4.69	513	408	13,464	3.98	536	---	---	---	---
Texas	3,760	10,577	4.65	492	1,191	14,458	3.89	562	23	13,083	3.79	495
Utah	679	11,485	4.83	554	106	13,477	4.02	542	3	19,272	3.87	747
Vermont	5,812	11,076	4.75	526	144	15,650	3.89	608	45	11,506	3.49	402
Virginia	841	10,993	4.81	529	135	13,565	3.83	519	6	13,675	3.74	512
Washington	3,594	11,836	5.06	599	232	14,802	4.05	599	47	15,159	3.46	525
West Virginia	281	11,794	4.60	543	1	13,093	3.91	512	---	---	---	---
Wisconsin	2,848	10,451	4.88	510	3,411	13,928	4.06	566	255	11,973	3.62	434
Wyoming	28	9,784	4.66	456	2	13,878	4.09	568	---	---	---	---
United States	83,164	10,887	4.84	527	24,213	13,676	4.01	548	3,016	11,497	3.63	418

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 3.--Number of records and national average production for 6 breeds calving in 1971-79

Breed	Year of calving					Change, 1971-79	
	1971	1973	1975	1977	1979	Amount	Percentage
				Records (number)			
Ayrshire	19,478	18,683	18,695	19,467	19,466	-12	-0.1
Guernsey	78,691	69,680	62,149	56,246	51,579	-27,112	-34.5
Holstein	850,379	919,735	1,014,257	1,143,648	1,271,996	+421,617	+49.6
Jersey	74,132	71,557	71,812	76,785	83,164	+9,032	+12.2
Brown Swiss	21,001	21,057	21,635	23,553	24,213	+3,212	+15.3
Milking Shorthorn	2,635	2,442	2,648	2,693	3,016	+381	+14.5
				Milk (pounds)			
Ayrshire	11,457	11,322	11,730	12,167	12,492	+1,035	+9.0
Guernsey	10,231	10,133	10,573	11,003	11,231	+1,000	+9.8
Holstein	14,984	14,837	15,528	16,354	16,792	+1,808	+12.1
Jersey	9,528	9,588	10,150	10,546	10,887	+1,359	+14.3
Brown Swiss	12,810	12,658	13,063	13,502	13,676	+866	+6.8
Milking Shorthorn	10,217	10,182	10,596	11,448	11,497	+1,280	+12.5
				Fat (percent)			
Ayrshire	3.91	3.90	3.90	3.89	3.88	-.03	-.8
Guernsey	4.66	4.62	4.61	4.59	4.63	-.03	-.6
Holstein	3.63	3.64	3.65	3.61	3.61	-.02	-.6
Jersey	4.99	4.94	4.90	4.83	4.84	-.15	-3.0
Brown Swiss	4.03	3.99	3.97	3.96	4.01	-.02	-.5
Milking Shorthorn	3.66	3.64	3.64	3.61	3.63	-.03	-.8
				Fat (pounds)			
Ayrshire	448	442	457	473	484	+36	+8.0
Guernsey	477	469	487	506	519	+42	+8.8
Holstein	545	540	566	591	606	+61	+11.2
Jersey	476	473	497	510	527	+51	+10.7
Brown Swiss	516	505	519	535	548	+32	+6.2
Milking Shorthorn	374	371	386	414	418	+44	+11.8

CHANGES IN THE AIPL GENETIC EVALUATION PROCEDURES

By George R. Wiggans and Rex L. Powell[1]

The primary mission of the Animal Improvement Programs Laboratory (AIPL) is to develop and apply improved methods for genetic evaluation of dairy cattle. Procedures for computing and distributing genetic evaluations are changed occasionally to improve the accuracy and to enhance the usefulness of the evaluations.

The following changes were implemented in recent genetic evaluation runs.

July 1981

Evaluations for maternal grandsires were incorporated into Cow Indexes (CI's) for cows with dams that do not have CI's. The Elite CI was made more selective by raising the CI Dollars requirement. Requirements were eliminated for specific levels of mature-equivalent yield or deviations from modified contemporary averages so that the Elite CI would be based more specifically on genetic superiority.

The minimum number of records used in computing the percentage of first lactation records culled in Sire Summaries was increased from 10 to 20.[2] Therefore, at least 20 daughters of a bull must have calved for the first time a year or more before the cutoff date for a Sire Summary run, or the percentage culled was not computed.

Procedures to compute evaluations for bulls used in Mexico were changed to resemble more closely the procedures used for U.S. bulls. Record correction, edit, adjustment, and recycling and resummarization criteria were affected. A master file was initiated, and incomplete records were projected based on last sample-day production. The first CI's for cows in Mexico were computed and distributed.

January 1982

Type-of-test codes were expanded to two digits; thus, they allowed for an expansion in the number of plans and uniform coding at dairy records processing centers (DRPC's). This change necessitated revisions in record formats and computer programs.

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[1] Research geneticists (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Powell, R. L. Computation and interpretation of the percentage of first lactation records culled in Sire Summaries. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 57(2), pp. 6-9. 1981.

Adjustment for three-times-a-day milking was changed to conform with the adjustment presented by Wiggans and Grossman.[3] This change affected records with fewer than 305 days in milk.

As an aid in distributing CI information, the DRPC code and animal control number were added to the CI record.

Editing procedures for records of Red and White cows were changed to allow for records of registered cows with grade dams. The Red and White Dairy Cattle Association registers cows with grade parents.

Responsibility for the test herds used by the DRPC's to check the accuracy of their computing systems was shifted from AIPL to the Quality Certification Service of the National Dairy Herd Improvement Association, Inc. Several standard herds were created and processed by the DRPC's. A summary of lactation records from these herds was prepared by AIPL.

July 1982

A CI now is distributed to DRPC's and breed organizations whenever recalculated, regardless of whether a cow has a current lactation record. Previously, only CI's for cows with recent lactations were distributed even though a new CI was computed each time a cow's sire was evaluated. Cows still must have calved in the 2 years prior to the cutoff date of a Sire Summary run to be considered for Elite status.

The National Association of Animal Breeders' bull code number was included in the USDA-DHIA Active AI Sire Summary. Information from the Sire Summaries for solids-not-fat (SNF) and protein was integrated into the USDA-DHIA Active AI and USDA-DHIA Complete Sire Summaries. This consolidation facilitated the use of Sire Summaries and reduced bulk and cost. Recipients of Sire Summaries were limited to one copy each.

Lists of lactation records with SNF and protein percentages outside acceptable limits were returned to the DRPC's. However, these lists did not include all excluded records.

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[3] Wiggans, G. R., and Grossman, M. Adjusting records from three-times-a-day to two-times-a-day milking basis. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(4), pp. 7-8. 1980.

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Dairy Herd Improvement Letter

NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
PARTICIPATION REPORT--
STATE ACTIVITIES AS OF JANUARY 1, 1982

By H. D. Norman, E. F. Myers, and F. N. Dickinson [1]

Participation in the National Cooperative Dairy Herd Improvement Program (NCDHIP) continues to expand. As of January 1, 1982, NCDHIP included 43.1 percent of U.S. dairy cows as compared with 40.2 percent last year. The program now enrolls 4,790,180 cows and 14,449 does.

This report is prepared annually to summarize State activities in many segments of NCDHIP. Information is provided by either the State Extension Dairy Specialists advising on NCDHIP in their respective States or personnel from the nine dairy records processing centers that compute Dairy Herd Improvement Association (DHIA) records for the States.

All information in this report represents State participation as of January 1, 1982, unless otherwise indicated. Puerto Rico and the Virgin Islands are listed in the tables under the heading State; this results in a total of 52 NCDHIP States. A Guide to Tables based on highlights is included.

Table 1 shows 50 State DHIA's in existence on January 1, 1982. Only Alaska and Mississippi do not have a State DHIA. Forty-three States were members of National DHIA. The number of testing associations increased by 18 to 1,084 and the number of testing supervisors by 92 to 2,916.

Table 2 ranks the States by cow population ranges and percentage of cows enrolled in any NCDHIP plan. The proportion of U.S. dairy cows enrolled in NCDHIP is the highest in history at 43.1 percent. California ranks highest among the major dairy States, with 60.7 percent of cows enrolled. Of the States with large cow populations, Michigan, New York, Pennsylvania, Washington, and Wisconsin have nearly 50 percent or more cows enrolled. Most States showed an increase in participation; 16 States now have over 50 percent of cows enrolled.

Table 3 summarizes participation in official and nonofficial NCDHIP plans by State. The dairy cow population in each State as reported by the Statistical Reporting Service, U.S. Department of Agriculture, is presented, and these figures are used as the basis for determining each State's percentage of participation in the various plans throughout this report. The U.S. dairy cow inventory of 11,107,000 cows includes 109,000 from Puerto Rico and the Virgin Islands. Nearly 4.8 million U.S. dairy cows from 65,873 herds were enrolled in NCDHIP. Participation of U.S. dairy cows in official plans is 30.5 percent, an increase from 28.7 percent last year; participation in nonofficial plans is 12.7 percent, an increase from 11.5 percent last year. Records from cows enrolled in official plans are used in calculating genetic evaluations for bulls and cows. Nearly 3.4 million U.S. cows now are enrolled in official plans as compared with 3.2 million a year ago.

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[1] Research geneticist (animal), statistical assistant, and Chief, respectively, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

Table 4 shows how enrollment in NCDHIP changed during the past year. Out of 52 States, 45 increased cow enrollment, 10 States by more than 10,000 cows. There was an increase in all testing plans of 2,898 herds and 310,112 cows. Forty-nine percent of the increase in the number of herds enrolled and 60 percent of the increase in the number of cows enrolled were reflected in official plans. For all plans, the greatest increases in the number of herds enrolled came from Wisconsin, Minnesota, Pennsylvania, and Iowa, and the largest increases in cows came from Wisconsin, Minnesota, California, Pennsylvania, and Michigan. For official plans, California, Wisconsin, and Minnesota showed the largest increases in the number of cows enrolled. For nonofficial plans, Wisconsin and New York showed large increases in numbers of herds and cows enrolled. Much of this increase in New York appears to result from a decrease in the herds enrolled in official plans.

Enrollment in Official DHI, the traditional plan, continued to show a small decrease, with a decline of 560 herds and 5,254 cows (table 5). This decrease in the presence of an expanding program indicates that dairymen are using alternative plans suitable to their individual needs; still, Official DHI is the plan used by most dairymen participating in NCDHIP, with an enrollment of 31,647 herds and 2,510,461 cows.

Table 6 shows the participation in the Official DHI AM-PM plan, which requires a monitoring device to record time of milking. Enrollment in Official DHI AM-PM increased from 667 herds a year ago to 1,242 herds in January 1982. The corresponding number of cows enrolled increased from 49,014 to 100,141. Much of the participation in this plan is from Minnesota.

Table 7 shows participation in Official DHI with Alternate AM-PM Component Sampling, the plan with the greatest growth. Herd enrollment increased from 2,269 to 3,265 and cow enrollment from 276,974 to 374,955. Much of this change was due to increased enrollment in Tennessee and Texas. The increase in Tennessee appears to be due primarily from a decrease in the herds enrolled in Official DHI. From examination of changes in the number of herds and cows enrolled in each plan for each State, the Official DHI plan appears to have had many new herds enrolled but also to have lost a large number to other plans such as Official DHI with Alternate AM-PM Component Sampling.

Participation in the breed association-sponsored Dairy Herd Improvement Registry (DHIR) plan showed an increase of 362 herds and 35,770 cows more than last year's enrollment (table 8). This is an increase of 8.5 percent in the number of herds and 10.4 percent in the number of cows. Participation is at an alltime high with 4,646 herds and 378,360 cows now enrolled in this plan. The largest increase in herds enrolled was in Wisconsin and the largest increases in cows in Wisconsin and California.

Table 9 shows participation in Official DHIR AM-PM with Monitoring Device. Only two herds are enrolled in this plan. Table 10 gives enrollment in Official DHIR with

Alternate AM-PM Component Sampling. For the second consecutive year, this plan nearly doubled in size and now enrolls 18,612 cows in 131 herds.

There are 13 nonofficial plans (8 unsupervised and 5 supervised) in NCDHIP, with a total enrollment of 24,940 herds and 1,407,203 cows. Participation in the 8 unsupervised plans (tables 11-16, 22-23) accounts for 8.8 percent of all U.S. dairy cows, with 20,121 herds and 973,946 cows. Six of these unsupervised plans (tables 11-16) are Owner-Sampler plans, with an enrollment of 19,960 herds and 960,950 cows, accounting for 8.7 percent of all U.S. dairy cows. The most significant change occurred in the Owner-Sampler AM-PM plan (table 12), with the number of herds enrolled increasing by 836 to 3,065 and the number of cows by 45,582 to 157,602. Minnesota showed the greatest change with 772 herds and 35,236 cows now enrolled, an increase of 370 herds and 16,894 cows.

Tables 17 and 18 show the enrollment for the Commercial and the Commercial AM-PM plans. These supervised plans now enroll 425 herds and 115,051 cows, an increase of 163 herds and 18,114 cows.

Enrollment in the Supervised AM-PM, the Supervised Milk-Only-Records, and the Supervised AM-PM Milk-Only-Records plans is shown in tables 19-21. Participation in these 3 nonofficial supervised plans accounts for 2.9 percent of all U.S. dairy cows, with 4,394 herds and 318,206 cows. Enrollment in the Supervised AM-PM plan is 3,965 herds and 237,765 cows, an increase of 607 herds and 37,191 cows, accounting for 2.1 percent of all U.S. dairy cows. Most of the increase was from New York and Iowa.

Table 22 shows enrollment in the Basic Management and Production plan. Current enrollment in this unsupervised plan is 127 herds and 11,029 cows, a decrease of 62 herds and 2,906 cows. All other nonofficial plans had increased enrollment for the numbers of herds and cows (table 23).

Table 24 contains information on State enrollment of dairy goats in NCDHIP recordkeeping plans. The enrollment of 1,616 herds and 14,449 does is higher than last year's enrollment by 205 herds and 915 does. This represents a 14.5-percent increase in the number of herds and a 6.8-percent increase in the number of does enrolled in test plans compared with enrollment a year ago. Thirty-four States showed an increase in the number of does enrolled. Oregon had an increase of 562 does, but California had a decrease of 465 does.

Participation in NCDHIP services has increased (table 25). On January 1, 1982, 23,645 cow herds and 2,068,221 cows were participating in mastitis screening programs. Minnesota had the greatest increase since last year, with an additional 84,791 cows reported. Increased participation in both protein and solids-not-fat (SNF) testing was significant. Protein percentage of milk was tested for 1,170,637 cows and SNF percentage for 255,437 cows, an increase of 953,187 cows for protein testing and 59,056 for SNF testing. Wisconsin and New York showed increases of 296,828 and 358,905 cows over last year's participation in protein testing, and California increased participation in SNF testing by 59,846 cows. Forage testing, pregnancy testing, and ration balancing are some of the other services offered, with forage testing having the most active participation of the three services. Four of the dairy record processing centers--California, New York, North Carolina, and Utah--have on-line capability for computer service available to both DHIA management and dairymen.

Participation in the Verified Identification Program (VIP), a grade identification program sponsored by NDHIA, is shown in table 26. From 1976 through January 1, 1982, 63,412 animals have received VIP certificates, with 16,731 animals certified in 1981, 3,910 more than in 1980.

Table 27 summarizes the trends in official NCDHIP recordkeeping plans since the beginning of NCDHIP in 1906. In 1982, the number and percentage of cows enrolled in NCDHIP increased. Milk and fat yield for cows in official plans averaged 15,134 pounds of milk and 558 pounds of fat. Fat percentage decreased to 3.68. Table 28 summarizes the trends in nonofficial NCDHIP recordkeeping plans since 1956. Milk and fat yield for cows enrolled in nonofficial plans averaged 14,101 pounds of milk and 530 pounds of fat. Fat percentage decreased to 3.74. Enrollment and average production in official and nonofficial plans reached new alltime highs in 1982.

Table 29 is a list of Extension Dairy Specialists who advise on NCDHIP.

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TABLE 1.--STATE DAIRY HERD IMPROVEMENT ASSOCIATIONS, MEMBERSHIP IN NATIONAL DAIRY HERD IMPROVEMENT ASSOCIATION, INC., ASSOCIATIONS, AND SUPERVISORS IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM, JANUARY 1, 1982

STATE 1/	STATE DHIA	MEMBER OF NDHIA, INC.	ASSOCIATIONS	SUPERVISORS
			NUMBER	NUMBER
ALABAMA	YES	NO	18	25
ALASKA	NO	NO	1	1
ARIZONA	YES	YES	1	17
ARKANSAS	YES	YES	31	31
CALIFORNIA	YES	YES	26	150
COLORADO	YES	YES	6	28
CONNECTICUT	YES	YES	6	24
DELAWARE	YES	YES	1	4
FLORIDA	YES	NO	9	22
GEORGIA	YES	YES	30	40
HAWAII 2/	YES	NO	1	1
IDAHO	YES	YES	28	47
ILLINOIS	YES	YES	44	87
INDIANA	YES	YES	46	96
IOWA	YES	YES	53	104
KANSAS	YES	YES	43	55
KENTUCKY	YES	YES	36	63
LOUISIANA	YES	YES	14	37
MAINE	YES	YES	12	47
MARYLAND	YES	YES	11	35
MASSACHUSETTS	YES	YES	7	21
MICHIGAN	YES	YES	1	89
MINNESOTA	YES	YES	74	212
MISSISSIPPI	NO	NO	24	33
MISSOURI	YES	YES	41	76
MONTANA 3/	YES	YES	7	9
NEBRASKA	YES	YES	31	44
NEVADA	YES	YES	4	5
NEW HAMPSHIRE	YES	YES	8	14
NEW JERSEY	YES	YES	5	20
NEW MEXICO 3/	YES	YES	4	7
NEW YORK	YES	YES	48	210
NORTH CAROLINA	YES	YES	23	47
NORTH DAKOTA	YES	YES	22	26
OHIO	YES	YES	17	112
OKLAHOMA	YES	YES	20	31
OREGON	YES	YES	10	28
PENNSYLVANIA 3/	YES	YES	60	212
PUERTO RICO	YES	YES	1	24
RHODE ISLAND	YES	NO	3	3
SOUTH CAROLINA	YES	YES	11	21
SOUTH DAKOTA	YES	YES	17	18
TENNESSEE	YES	NO	42	50
TEXAS	YES	NO	44	70
UTAH	YES	YES	17	21
VERMONT 3/	YES	YES	22	58
VIRGIN ISLANDS	YES	YES	1	1
VIRGINIA	YES	YES	37	61
WASHINGTON	YES	YES	17	77
WEST VIRGINIA	YES	YES	8	19
WISCONSIN	YES	YES	33	375
WYOMING 3/	YES	NO	8	8
NATIONAL COOPERATIVE DHI PROGRAM	50	43	1,084	2,916

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.
2/ DATA FOR JANUARY 1, 1978; NONE REPORTED FOR JANUARY 1, 1982.
3/ DATA FOR JANUARY 1, 1981; NONE REPORTED FOR JANUARY 1, 1982.

TABLE 2.--PERCENTAGE OF COWS ENROLLED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM BY STATE COW POPULATION RANGE, JANUARY 1, 1982

STATE 1/ BY COW POPULATION RANGE	COW POPULATION 2/	STATE RANKING 3/	COWS ENROLLED
	THOUSANDS		PCT
OVER 500,000			
CALIFORNIA	940	7	60.7
NEW YORK	921	23	46.1
PENNSYLVANIA	730	24	45.4
WISCONSIN	1,830	25	45.3
MINNESOTA	905	33	38.1
200,001-500,000			
WASHINGTON	207	13	53.6
MICHIGAN	396	21	47.0
OHIO	382	31	38.2
ILLINOIS	234	35	37.3
INDIANA	207	37	35.6
IOWA	389	39	34.8
TENNESSEE	215	43	32.1
TEXAS	325	44	29.7
MISSOURI	245	45	29.4
KENTUCKY	240	51	18.3
100,001-200,000			
NORTH CAROLINA	133	10	58.2
VIRGINIA	170	11	56.0
MARYLAND	122	16	50.1
KANSAS	124	19	48.0
GEORGIA	131	20	47.8
VERMONT	187	28	41.8
IDAHO	168	32	38.2
FLORIDA	190	34	37.6
LOUISIANA	102	38	35.5
NEBRASKA	122	40	33.1
PUERTO RICO	108	41	33.0
OKLAHOMA	110	46	25.7
SOUTH DAKOTA	155	47	24.2
50,001-100,000			
ARIZONA	79	4	66.3
OREGON	97	5	62.7
NEW MEXICO	55	6	61.7
UTAH	86	12	54.0
COLORADO	75	15	50.2
MAINE	58	17	48.6
ALABAMA	63	26	43.8
MISSISSIPPI	97	42	32.9
ARKANSAS	84	49	21.1
NORTH DAKOTA	92	52	14.9
50,000 OR UNDER			
VIRGIN ISLANDS	1	1	88.0
NEVADA	16	2	76.9
SOUTH CAROLINA	48	3	70.5
HAWAII	13	8	60.1
CONNECTICUT	47	9	59.4
NEW HAMPSHIRE	30	14	53.5
DELAWARE	10	18	48.4
MASSACHUSETTS	45	22	46.8
NEW JERSEY	41	27	43.2
WEST VIRGINIA	36	29	41.4
MONTANA	29	30	38.8
RHODE ISLAND	4	36	36.0
WYOMING	12	48	23.0
ALASKA	1	50	21.0
NCDHIP TOTAL	11,107	--	----

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

3/ HIGHEST PERCENTAGE OF COWS ENROLLED EQUALS 1.

TABLE 3.--ENROLLMENT BY CATEGORY OF PLAN AND STATE FOR DAIRY COWS, JANUARY 1, 1982

STATE 1/	ALL MILK COWS 2/	OFFICIAL PLANS		COWS IN OFFICIAL PLANS	NONOFFICIAL PLANS		COWS IN NONOFFICIAL PLANS	ALL TESTING PLANS		COWS IN ALL PLANS
		HERDS	COWS		HERDS	COWS		HERDS	COWS	
	THOUSANDS	NUMBER	NUMBER	PCT	NUMBER	NUMBER	PCT	NUMBER	NUMBER	PCT
ALABAMA----------	63	218	26,425	41.9	12	1,198	1.9	230	27,623	43.8
ALASKA-----------	1	1	62	5.6	2	169	15.4	3	231	21.0
ARIZONA----------	79	127	50,954	64.5	6	1,395	1.8	133	52,349	66.3
ARKANSAS---------	84	203	13,387	15.9	45	4,324	5.1	248	17,711	21.1
CALIFORNIA-------	940	1,307	485,765	51.7	193	84,354	9.0	1,500	570,119	60.7
COLORADO---------	75	256	33,590	44.8	23	4,092	5.5	279	37,682	50.2
CONNECTICUT------	47	301	23,998	51.1	46	3,940	8.4	347	27,938	59.4
DELAWARE---------	10	49	4,434	44.3	4	405	4.0	53	4,839	48.4
FLORIDA----------	190	77	21,895	11.5	118	49,507	26.1	195	71,402	37.6
GEORGIA----------	131	341	41,903	32.0	122	20,729	15.8	463	62,632	47.8
HAWAII-----------	13	8	4,014	30.9	6	3,803	29.3	14	7,817	60.1
IDAHO------------	168	546	56,814	33.8	48	7,332	4.4	594	64,146	38.2
ILLINOIS---------	234	1,280	75,210	32.1	247	12,144	5.2	1,527	87,354	37.3
INDIANA----------	207	969	59,659	28.8	258	13,946	6.7	1,227	73,605	35.6
IOWA-------------	389	1,485	76,680	19.7	1,248	58,553	15.1	2,731	135,233	34.8
KANSAS-----------	124	785	53,992	43.5	110	5,531	4.5	895	59,523	48.0
KENTUCKY---------	240	560	36,420	15.2	94	7,385	3.1	654	43,805	18.3
LOUISIANA--------	102	322	31,898	31.3	40	4,357	4.3	362	36,255	35.5
MAINE------------	58	462	24,148	41.6	49	4,055	7.0	511	28,203	48.6
MARYLAND---------	122	661	57,589	47.2	55	3,521	2.9	716	61,110	50.1
MASSACHUSETTS----	45	346	19,928	44.3	23	1,136	2.5	369	21,064	46.8
MICHIGAN---------	396	1,607	130,146	32.9	886	55,794	14.1	2,493	185,940	47.0
MINNESOTA--------	905	4,554	236,638	26.1	2,577	108,074	11.9	7,131	344,712	38.1
MISSISSIPPI------	97	303	29,537	30.5	26	2,336	2.4	329	31,873	32.9
MISSOURI---------	245	911	61,289	25.0	200	10,644	4.3	1,111	71,933	29.4
MONTANA----------	29	113	9,574	33.0	11	1,687	5.8	124	11,261	38.8
NEBRASKA---------	122	515	35,923	29.4	70	4,447	3.6	585	40,370	33.1
NEVADA-----------	16	39	11,601	72.5	7	711	4.4	46	12,312	76.9
NEW HAMPSHIRE----	30	229	13,654	45.5	39	2,391	8.0	268	16,045	53.5
NEW JERSEY-------	41	196	14,892	36.3	44	2,812	6.9	240	17,704	43.2
NEW MEXICO-------	55	64	32,532	59.1	8	1,395	2.5	72	33,927	61.7
NEW YORK---------	921	3,101	217,185	23.6	3,400	207,148	22.5	6,501	424,333	46.1
NORTH CAROLINA---	133	656	72,003	54.1	55	5,356	4.0	711	77,359	58.2
NORTH DAKOTA-----	92	178	11,280	12.3	40	2,415	2.6	218	13,695	14.9
OHIO-------------	382	1,708	107,798	28.2	758	38,101	10.0	2,466	145,899	38.2
OKLAHOMA---------	110	346	25,700	23.4	39	2,573	2.3	385	28,273	25.7
OREGON-----------	97	411	48,815	50.3	91	11,980	12.4	502	60,795	62.7
PENNSYLVANIA-----	730	3,957	228,100	31.2	2,143	103,285	14.1	6,100	331,385	45.4
PUERTO RICO------	108	192	35,589	33.0	0	0	0.0	192	35,589	33.0
RHODE ISLAND-----	4	25	1,405	36.0	0	0	0.0	25	1,405	36.0
SOUTH CAROLINA---	48	231	31,662	66.0	19	2,169	4.5	250	33,831	70.5
SOUTH DAKOTA-----	155	296	18,937	12.2	350	18,575	12.0	646	37,512	24.2
TENNESSEE--------	215	740	65,691	30.6	34	3,247	1.5	774	68,938	32.1
TEXAS------------	325	697	89,092	27.4	50	7,288	2.2	747	96,380	29.7
UTAH-------------	86	376	42,935	49.9	29	3,546	4.1	405	46,481	54.0
VERMONT----------	187	1,090	61,991	33.2	299	16,267	8.7	1,389	78,258	41.8
VIRGIN ISLANDS---	1	0	0	0.0	4	528	88.0	4	528	88.0
VIRGINIA---------	170	981	92,952	54.7	41	2,328	1.4	1,022	95,280	56.0
WASHINGTON-------	207	687	95,455	46.1	101	15,440	7.5	788	110,895	53.6
WEST VIRGINIA----	36	184	14,462	40.2	10	427	1.2	194	14,889	41.4
WISCONSIN--------	1,830	6,216	344,758	18.8	10,858	484,223	26.5	17,074	828,981	45.3
WYOMING----------	12	28	2,616	21.8	2	140	1.2	30	2,756	23.0
NCDHIP TOTAL-----	11,107	40,933	3,382,977	30.5	24,940	1,407,203	12.7	65,873	4,790,180	43.1

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 4.--CHANGES IN ENROLLMENT BY CATEGORY OF PLAN AND STATE FOR DAIRY COWS, 1981-82

STATE 1/	OFFICIAL PLANS		NONOFFICIAL PLANS		ALL TESTING PLANS	
	CHANGE IN HERDS	CHANGE IN COWS	CHANGE IN HERDS	CHANGE IN COWS	CHANGE IN HERDS	CHANGE IN COWS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ALABAMA----------	0	-436	-2	-217	-2	-653
ALASKA-----------	0	3	-3	-191	-3	-188
ARIZONA----------	6	2,054	1	282	7	2,336
ARKANSAS---------	13	1,977	-5	-408	8	1,569
CALIFORNIA-------	49	26,186	7	1,991	56	28,177
COLORADO---------	17	4,528	-1	265	16	4,793
CONNECTICUT------	-14	270	0	243	-14	513
DELAWARE---------	-2	44	0	-12	-2	32
FLORIDA----------	12	3,707	11	11,293	23	15,000
GEORGIA----------	9	1,396	11	2,005	20	3,401
HAWAII-----------	-2	-1,900	2	1,837	0	-63
IDAHO------------	35	6,221	-4	394	31	6,615
ILLINOIS---------	77	6,036	18	1,125	95	7,161
INDIANA----------	9	2,433	5	708	14	3,141
IOWA-------------	-30	1,715	222	12,215	192	13,930
KANSAS-----------	32	3,810	6	393	38	4,203
KENTUCKY---------	5	726	19	782	24	1,508
LOUISIANA--------	13	1,149	-5	516	8	1,665
MAINE------------	32	582	-1	425	31	1,007
MARYLAND---------	11	1,599	5	3	16	1,602
MASSACHUSETTS----	10	580	0	-108	10	472
MICHIGAN---------	80	13,733	43	4,389	123	18,122
MINNESOTA--------	321	21,836	198	11,099	519	32,935
MISSISSIPPI------	20	3,496	1	84	21	3,580
MISSOURI---------	83	5,805	26	1,587	109	7,392
MONTANA----------	5	237	8	1,321	13	1,558
NEBRASKA---------	36	3,669	15	957	51	4,626
NEVADA-----------	-2	810	6	619	4	1,429
NEW HAMPSHIRE----	6	331	-6	106	0	437
NEW JERSEY-------	-3	162	10	586	7	748
NEW MEXICO-------	10	4,464	0	-48	10	4,416
NEW YORK---------	-275	-9,671	258	20,374	-17	10,703
NORTH CAROLINA---	3	2,209	-4	205	-1	2,414
NORTH DAKOTA-----	-1	667	9	436	8	1,103
OHIO-------------	-52	-933	82	6,758	30	5,825
OKLAHOMA---------	-27	-1,552	13	1,013	-14	-539
OREGON-----------	15	3,992	39	7,027	54	11,019
PENNSYLVANIA-----	133	10,365	203	10,176	336	20,541
PUERTO RICO------	20	3,007	0	0	20	3,007
RHODE ISLAND-----	-2	5	0	0	-2	5
SOUTH CAROLINA---	9	1,157	3	389	12	1,546
SOUTH DAKOTA-----	48	3,974	15	1,380	63	5,354
TENNESSEE--------	50	3,756	-4	-201	46	3,555
TEXAS------------	102	16,388	-11	-1,993	91	14,395
UTAH-------------	31	4,465	5	154	36	4,619
VERMONT----------	28	1,099	-28	-1,546	0	-447
VIRGIN ISLANDS---	-3	-328	3	323	0	-5
VIRGINIA---------	38	3,688	4	143	42	3,831
WASHINGTON-------	-7	669	22	3,861	15	4,530
WEST VIRGINIA----	0	242	2	146	2	388
WISCONSIN--------	462	25,066	295	21,836	757	46,902
WYOMING----------	-1	136	-4	-234	-5	-98
NCDHIP TOTAL-----	1,409	185,624	1,489	124,488	2,898	310,112

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

TABLE 5.--ENROLLMENT IN THE OFFICIAL DAIRY HERD IMPROVEMENT PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	28	-18	3,176	-2,468	63	5.0
ARIZONA	92	2	41,313	1,798	79	52.3
ARKANSAS	176	14	11,750	1,847	84	14.0
CALIFORNIA	1,062	5	398,071	3,613	940	42.3
COLORADO	205	17	27,540	4,429	75	36.7
CONNECTICUT	250	-16	20,439	-439	47	43.5
DELAWARE	39	-2	3,838	50	10	38.4
FLORIDA	11	4	3,923	723	190	2.1
GEORGIA	145	-16	15,283	-2,373	131	11.7
HAWAII	8	-2	4,014	-1,900	13	30.9
IDAHO	500	22	51,515	3,851	168	30.7
ILLINOIS	856	-11	48,665	129	234	20.8
INDIANA	786	0	48,297	1,605	207	23.3
IOWA	1,208	-65	62,370	-810	389	16.0
KANSAS	680	9	46,123	1,855	124	37.2
KENTUCKY	449	-35	29,461	-1,437	240	12.3
LOUISIANA	53	-42	4,953	-4,182	102	4.9
MAINE	393	24	20,377	150	58	35.1
MARYLAND	597	10	49,638	1,335	122	40.7
MASSACHUSETTS	293	5	16,829	432	45	37.4
MICHIGAN	1,463	67	119,161	12,238	396	30.1
MINNESOTA	3,598	-79	184,411	-515	905	20.4
MISSISSIPPI	17	-4	1,519	-659	97	1.6
MISSOURI	663	10	43,223	949	245	17.6
MONTANA	95	5	8,350	916	29	28.8
NEBRASKA	431	-3	29,125	575	122	23.9
NEVADA	23	-6	7,878	-1,216	16	49.2
NEW HAMPSHIRE	192	1	10,646	-231	30	35.5
NEW JERSEY	162	-5	12,096	-167	41	29.5
NEW MEXICO	48	13	24,521	5,362	55	44.6
NEW YORK	2,718	-304	191,978	-13,157	921	20.8
NORTH CAROLINA	108	15	12,093	1,521	133	9.1
NORTH DAKOTA	128	-24	7,857	-1,111	92	8.5
OHIO	1,375	-10	86,702	947	382	22.7
OKLAHOMA	247	-40	17,998	-3,095	110	16.4
OREGON	331	13	41,177	3,269	97	42.5
PENNSYLVANIA	3,737	86	214,012	7,406	730	29.3
RHODE ISLAND	18	-2	1,079	10	4	27.7
SOUTH CAROLINA	53	4	7,172	571	48	14.9
SOUTH DAKOTA	162	-1	10,883	336	155	7.0
TENNESSEE	84	-548	8,002	-48,368	215	3.7
TEXAS	151	-23	19,625	-1,991	325	6.0
UTAH	336	21	36,320	3,652	86	42.2
VERMONT	952	22	54,648	486	187	29.2
VIRGINIA	797	14	70,958	301	170	41.7
WASHINGTON	560	-11	79,496	1,993	207	38.4
WEST VIRGINIA	166	-2	12,661	10	36	35.2
WISCONSIN	5,178	327	287,078	16,367	1,830	15.7
WYOMING	23	-1	2,217	139	12	18.5
NCDHIP TOTAL	31,647	-560	2,510,461	-5,254	11,107	22.6

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 6.--ENROLLMENT IN THE OFFICIAL DHI AM-PM WITH MONITORING DEVICE PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARKANSAS	4	4	287	287	84	0.3
CALIFORNIA	39	31	24,002	17,366	940	2.6
COLORADO	0	-1	0	-605	75	0.0
IDAHO	1	1	149	149	168	0.1
ILLINOIS	219	82	14,003	5,337	234	6.0
INDIANA	1	1	58	58	207	0.0
IOWA	52	8	2,857	417	389	0.7
KANSAS	20	19	1,730	1,664	124	1.4
LOUISIANA	3	0	406	-4	102	0.4
MARYLAND	1	-10	159	-873	122	0.1
MICHIGAN	1	0	68	-20	396	0.0
MINNESOTA	648	364	35,294	19,671	905	3.9
MISSOURI	13	9	1,087	785	245	0.4
MONTANA	0	-2	0	-807	29	0.0
NEBRASKA	37	35	3,009	2,659	122	2.5
NEVADA	4	3	1,838	1,573	16	11.5
NEW HAMPSHIRE	2	2	482	482	30	1.6
NORTH DAKOTA	23	13	2,054	1,336	92	2.2
OHIO	21	-52	2,163	-3,348	382	0.6
OKLAHOMA	12	8	1,153	880	110	1.0
OREGON	0	-1	0	-309	97	0.0
PENNSYLVANIA	31	14	2,370	955	730	0.3
SOUTH DAKOTA	109	47	6,836	3,420	155	4.4
TEXAS	1	0	136	54	325	0.0
NCDHIP TOTAL	1,242	575	100,141	51,127	11,107	0.9

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 7.--ENROLLMENT IN THE OFFICIAL DHI WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1982

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	173	17	21,012	1,525	63	33.4
FLORIDA----------	60	8	14,782	1,249	190	7.8
GEORGIA----------	160	23	21,231	3,588	131	16.2
IDAHO------------	17	17	2,253	2,253	168	1.3
ILLINOIS---------	26	8	1,349	446	234	0.6
INDIANA----------	28	-1	2,402	21	207	1.2
IOWA-------------	14	6	517	91	389	0.1
KANSAS-----------	10	2	1,388	177	124	1.1
KENTUCKY---------	43	36	2,658	2,070	240	1.1
LOUISIANA--------	238	49	23,627	4,684	102	23.2
MINNESOTA--------	8	3	953	234	905	0.1
MISSISSIPPI------	259	18	24,631	2,726	97	25.4
MISSOURI---------	145	56	11,298	3,651	245	4.6
NEW MEXICO-------	8	-3	4,413	-837	55	8.0
NEW YORK---------	9	9	1,147	1,147	921	0.1
NORTH CAROLINA---	505	-22	55,224	-406	133	41.5
NORTH DAKOTA-----	16	11	805	530	92	0.9
OHIO-------------	0	-1	0	-60	382	0.0
OKLAHOMA---------	32	5	2,098	292	110	1.9
PUERTO RICO------	192	20	35,589	3,007	108	33.0
SOUTH CAROLINA---	135	6	17,949	-75	48	37.4
TENNESSEE--------	595	595	51,695	51,695	215	24.0
TEXAS------------	470	113	60,922	17,178	325	18.7
UTAH-------------	4	1	1,269	-110	86	1.5
VIRGIN ISLANDS---	0	-3	0	-328	1	0.0
VIRGINIA---------	115	23	13,981	2,954	170	8.2
WASHINGTON-------	3	0	1,762	279	207	0.9
NCDHIP TOTAL-----	3,265	996	374,955	97,981	11,107	3.4

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 8.--ENROLLMENT IN THE OFFICIAL DAIRY HERD IMPROVEMENT REGISTRY PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	7	0	716	111	63	1.1
ALASKA-----------	1	0	62	3	1	5.6
ARIZONA----------	35	4	9,641	256	79	12.2
ARKANSAS---------	23	-5	1,350	-157	84	1.6
CALIFORNIA-------	206	13	63,692	5,207	940	6.8
COLORADO---------	51	1	6,050	704	75	8.1
CONNECTICUT------	51	2	3,559	709	47	7.6
DELAWARE---------	10	0	596	-6	10	6.0
FLORIDA----------	0	-1	0	-55	190	0.0
GEORGIA----------	30	-1	4,231	-611	131	3.2
IDAHO------------	28	-5	2,897	-32	168	1.7
ILLINOIS---------	173	-2	10,796	90	234	4.6
INDIANA----------	154	9	8,902	749	207	4.3
IOWA-------------	207	21	10,777	2,030	389	2.8
KANSAS-----------	75	2	4,751	114	124	3.8
KENTUCKY---------	68	4	4,301	93	240	1.8
LOUISIANA--------	14	0	1,447	-14	102	1.4
MAINE------------	68	8	3,549	436	58	6.1
MARYLAND---------	63	11	7,792	1,137	122	6.4
MASSACHUSETTS----	53	5	3,099	148	45	6.9
MICHIGAN---------	143	13	10,917	1,515	396	2.8
MINNESOTA--------	300	34	15,980	2,454	905	1.8
MISSISSIPPI------	14	5	1,968	1,100	97	2.0
MISSOURI---------	88	7	5,528	348	245	2.3
MONTANA----------	18	2	1,224	128	29	4.2
NEBRASKA---------	47	4	3,789	435	122	3.1
NEVADA-----------	12	1	1,885	453	16	11.8
NEW HAMPSHIRE----	34	2	2,300	-146	30	7.7
NEW JERSEY-------	34	2	2,796	329	41	6.8
NEW MEXICO-------	8	0	3,598	-61	55	6.5
NEW YORK---------	374	20	24,060	2,339	921	2.6
NORTH CAROLINA---	32	8	3,374	727	133	2.5
NORTH DAKOTA-----	11	-1	564	-88	92	0.6
OHIO-------------	312	11	18,933	1,528	382	5.0
OKLAHOMA---------	55	0	4,451	371	110	4.0
OREGON-----------	80	4	7,638	1,061	97	7.9
PENNSYLVANIA-----	189	33	11,718	2,004	730	1.6
RHODE ISLAND-----	7	0	326	-5	4	8.4
SOUTH CAROLINA---	19	-2	2,400	-266	48	5.0
SOUTH DAKOTA-----	25	4	1,218	286	155	0.8
TENNESSEE--------	36	-22	3,586	-1,979	215	1.7
TEXAS------------	63	2	7,120	353	325	2.2
UTAH-------------	36	9	5,346	923	86	6.2
VERMONT----------	138	6	7,343	613	187	3.9
VIRGINIA---------	69	1	8,013	433	170	4.7
WASHINGTON-------	124	16	14,197	1,075	207	6.9
WEST VIRGINIA----	18	2	1,801	232	36	5.0
WISCONSIN--------	1,038	135	57,680	8,699	1,830	3.2
WYOMING----------	5	0	399	-3	12	3.3
NCDHIP TOTAL-----	4,646	362	378,360	35,770	11,107	3.4

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 9.--ENROLLMENT IN THE OFFICIAL DHIR AM-PM WITH MONITORING DEVICE PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
MAINE------------	1	0	222	-4	58	0.4
MINNESOTA--------	0	-1	0	-8	905	0.0
NEW HAMPSHIRE----	1	1	226	226	30	0.8
OREGON-----------	0	-1	0	-29	97	0.0
SOUTH DAKOTA-----	0	-2	0	-68	155	0.0
WASHINGTON-------	0	-12	0	-2,678	207	0.0
NCDHIP TOTAL-----	2	-15	448	-2,561	11,107	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 10.--ENROLLMENT IN THE OFFICIAL DHIR WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	10	1	1,521	396	63	2.4
FLORIDA----------	6	1	3,190	1,790	190	2.5
GEORGIA----------	6	3	1,158	792	131	4.5
ILLINOIS---------	6	0	397	34	234	2.7
IOWA-------------	2	0	159	-13	389	1.7
LOUISIANA--------	14	6	1,465	665	102	7.7
MISSISSIPPI------	13	1	1,419	329	97	9.6
MISSOURI---------	2	1	153	72	245	3.9
NORTH CAROLINA---	11	2	1,312	367	133	8.1
SOUTH CAROLINA---	24	1	4,141	927	48	31.1
TENNESSEE--------	25	25	2,408	2,408	215	8.1
TEXAS------------	12	10	1,289	794	325	5.7
NCDHIP TOTAL-----	131	51	18,612	8,561	11,107	0.2

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 11.--ENROLLMENT IN THE OWNER-SAMPLER PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	3	0	147	-32	63	0.2
ALASKA	2	-3	169	-191	1	15.4
ARKANSAS	36	-10	3,506	-812	84	4.2
CALIFORNIA	28	4	2,940	-291	940	0.3
COLORADO	4	0	297	63	75	0.4
CONNECTICUT	15	-5	485	-106	47	1.0
FLORIDA	2	1	146	74	190	0.1
GEORGIA	3	-6	174	-325	131	0.1
HAWAII	2	0	1,524	-24	13	11.7
IDAHO	36	-7	5,559	1,056	168	3.3
ILLINOIS	160	10	7,277	540	234	3.1
INDIANA	147	21	7,243	1,420	207	3.5
IOWA	538	-40	23,169	-891	389	6.0
KANSAS	100	3	5,097	303	124	4.1
KENTUCKY	26	5	1,570	46	240	0.7
LOUISIANA	1	1	1	1	102	0.0
MAINE	25	-2	1,059	182	58	1.8
MARYLAND	41	2	2,462	255	122	2.0
MASSACHUSETTS	19	0	645	-85	45	1.4
MICHIGAN	739	28	41,920	3,339	396	10.6
MINNESOTA	1,797	-174	71,852	-5,911	905	7.9
MISSISSIPPI	0	-4	0	-464	97	0.0
MISSOURI	186	21	9,519	1,307	245	3.9
MONTANA	8	5	855	489	29	2.9
NEBRASKA	45	6	3,124	464	122	2.6
NEVADA	1	1	217	217	16	1.4
NEW HAMPSHIRE	23	-10	1,059	-376	30	3.5
NEW JERSEY	11	4	446	207	41	1.1
NEW MEXICO	1	-3	104	-518	55	0.2
NEW YORK	871	5	42,236	534	921	4.6
NORTH CAROLINA	2	-16	164	-973	133	0.1
NORTH DAKOTA	19	2	1,474	194	92	1.6
OHIO	660	0	31,507	1,257	382	8.2
OKLAHOMA	20	3	999	169	110	0.9
OREGON	33	8	2,556	987	97	2.6
PENNSYLVANIA	809	48	32,602	-2,749	730	4.5
SOUTH CAROLINA	1	-1	54	-94	48	0.1
SOUTH DAKOTA	186	-59	9,429	-2,396	155	6.1
TENNESSEE	2	-1	286	49	215	0.1
TEXAS	11	-13	1,154	-1,746	325	0.4
UTAH	15	6	1,307	642	86	1.5
VERMONT	211	-49	10,235	-2,860	187	5.5
VIRGINIA	30	2	1,453	-31	170	0.9
WASHINGTON	37	0	2,937	707	207	1.4
WEST VIRGINIA	10	3	427	176	36	1.2
WISCONSIN	9,452	55	408,414	8,672	1,830	22.3
WYOMING	2	0	140	-5	12	1.2
NCDHIP TOTAL	16,370	-159	739,940	2,470	11,107	6.7

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 12.--ENROLLMENT IN THE OWNER-SAMPLER AM-PM PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARKANSAS---------	5	5	400	400	84	0.5
DELAWARE---------	4	4	405	405	10	4.0
FLORIDA----------	0	-6	0	-2,569	190	0.0
IDAHO------------	1	-3	63	-216	168	0.0
ILLINOIS---------	38	8	1,702	260	234	0.7
INDIANA----------	14	7	1,007	562	207	0.5
IOWA-------------	185	51	8,632	2,291	389	2.2
KANSAS-----------	3	3	81	81	124	0.1
KENTUCKY---------	0	-1	0	-170	240	0.0
LOUISIANA--------	3	-2	142	-273	102	0.1
MAINE------------	5	3	323	228	58	0.6
MICHIGAN---------	8	5	532	343	396	0.1
MINNESOTA--------	772	370	35,236	16,894	905	3.9
MISSOURI---------	12	5	562	244	245	0.2
NEBRASKA---------	25	9	1,323	493	122	1.1
NEW HAMPSHIRE----	2	2	238	238	30	0.8
NEW YORK---------	251	37	13,867	2,579	921	1.5
NORTH DAKOTA-----	7	7	305	305	92	0.3
OHIO-------------	11	1	701	30	382	0.2
OKLAHOMA---------	2	0	70	-26	110	0.1
OREGON-----------	0	-1	0	-44	97	0.0
PENNSYLVANIA-----	204	15	10,244	6,057	730	1.4
SOUTH DAKOTA-----	118	66	6,288	3,341	155	4.1
TEXAS------------	1	-1	394	-65	325	0.1
VERMONT----------	11	5	696	296	187	0.4
WASHINGTON-------	2	1	647	511	207	0.3
WISCONSIN--------	1,381	246	73,744	13,387	1,830	4.0
NCDHIP TOTAL-----	3,065	836	157,602	45,582	11,107	1.4

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 13.--ENROLLMENT IN THE OWNER-SAMPLER WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	1	1	52	52	63	0.1
CONNECTICUT------	1	1	467	467	47	1.0
GEORGIA----------	3	3	445	445	131	0.3
INDIANA----------	2	2	151	151	207	0.1
KENTUCKY---------	5	5	319	319	240	0.1
LOUISIANA--------	1	1	119	119	102	0.1
MISSISSIPPI------	5	5	413	413	97	0.4
NEW YORK---------	10	10	746	746	921	0.1
NORTH CAROLINA---	15	15	882	882	133	0.7
SOUTH CAROLINA---	1	1	45	45	48	0.1
TENNESSEE--------	1	1	14	14	215	0.0
TEXAS------------	8	8	627	627	325	0.2
NCDHIP TOTAL-----	53	53	4,280	4,280	11,107	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 14.--ENROLLMENT IN THE OWNER-SAMPLER MILK-ONLY-RECORDS PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	1	-1	272	-126	63	0.4
CONNECTICUT------	8	1	754	39	47	1.6
FLORIDA----------	18	6	9,738	3,779	190	5.1
GEORGIA----------	31	-7	5,519	-1,452	131	4.2
INDIANA----------	1	-1	59	-621	207	0.0
KENTUCKY---------	3	2	119	16	240	0.0
LOUISIANA--------	3	2	216	119	102	0.2
MAINE------------	15	2	1,472	149	58	2.5
MASSACHUSETTS----	3	0	338	14	45	0.8
MICHIGAN---------	75	75	6,630	6,630	396	1.7
MINNESOTA--------	5	5	682	682	905	0.1
NEW HAMPSHIRE----	4	-1	439	-122	30	1.5
NEW JERSEY-------	3	0	320	36	41	0.8
NEW YORK---------	96	-15	8,805	-761	921	1.0
NORTH CAROLINA---	14	-1	1,224	-192	133	0.9
PENNSYLVANIA-----	6	6	576	576	730	0.1
SOUTH CAROLINA---	4	0	378	51	48	0.8
TEXAS------------	7	-7	1,314	-1,206	325	0.4
VERMONT----------	5	2	410	145	187	0.2
VIRGINIA---------	1	0	51	-8	170	0.0
WEST VIRGINIA----	0	-1	0	-30	36	0.0
WISCONSIN--------	25	25	2,065	2,065	1,830	0.1
NCDHIP TOTAL-----	328	92	41,381	9,783	11,107	0.4

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 15.--ENROLLMENT IN THE OWNER-SAMPLER AM-PM MILK-ONLY-RECORDS PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
FLORIDA----------	4	4	2,136	2,136	190	1.1
GEORGIA----------	1	1	830	830	131	0.6
LOUISIANA--------	2	2	1,194	1,194	102	1.2
MAINE------------	2	-1	292	-301	58	0.5
MICHIGAN---------	3	3	489	489	396	0.1
MINNESOTA--------	3	3	304	304	905	0.0
NEW HAMPSHIRE----	1	1	109	109	30	0.4
NEW YORK---------	58	11	4,571	1,146	921	0.5
VERMONT----------	4	4	359	359	187	0.2
NCDHIP TOTAL-----	78	28	10,284	6,266	11,107	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 16.--ENROLLMENT IN THE OWNER-SAMPLER WITH AVERAGE (BREED OR PLANT) COMPONENTS USED PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	4	-2	469	-132	63	0.7
GEORGIA----------	2	-2	163	-305	131	0.1
INDIANA----------	3	3	232	232	207	0.1
KENTUCKY---------	33	-4	3,129	-306	240	1.3
NORTH CAROLINA---	2	0	84	-20	133	0.1
SOUTH CAROLINA---	4	3	742	443	48	1.5
TEXAS------------	8	-1	1,820	-125	325	0.6
VIRGINIA---------	10	2	824	182	170	0.5
NCDHIP TOTAL-----	66	-1	7,463	-31	11,107	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 17.--ENROLLMENT IN THE COMMERCIAL PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARIZONA----------	3	2	688	545	79	0.9
CALIFORNIA-------	161	0	78,282	-185	940	8.3
COLORADO---------	14	-3	2,428	-896	75	3.2
IDAHO------------	3	3	350	350	168	0.2
MARYLAND---------	2	-4	75	-764	122	0.1
NEVADA-----------	4	4	145	145	16	0.9
NEW MEXICO-------	7	3	1,291	470	55	2.3
OHIO-------------	1	1	264	264	382	0.1
OREGON-----------	57	33	9,407	6,431	97	9.7
PENNSYLVANIA-----	2	2	433	433	730	0.1
UTAH-------------	12	1	2,044	-20	86	2.4
WASHINGTON-------	46	8	9,102	799	207	4.4
NCDHIP TOTAL-----	312	50	104,509	7,572	11,107	0.9

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 18.--ENROLLMENT IN THE COMMERCIAL AM-PM PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
COLORADO----------	1	1	621	621	75	0.8
IDAHO-------------	6	6	828	828	168	0.5
MARYLAND----------	9	9	773	773	122	0.6
MONTANA-----------	3	3	832	832	29	2.9
NEVADA------------	1	1	258	258	16	1.6
OHIO--------------	81	81	5,285	5,285	382	1.4
WASHINGTON--------	12	12	1,945	1,945	207	0.9
NCDHIP TOTAL-----	113	113	10,542	10,542	11,107	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 19.--ENROLLMENT IN THE SUPERVISED AM-PM PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARKANSAS----------	1	1	81	81	84	0.1
CALIFORNIA--------	4	4	3,132	3,132	940	0.3
CONNECTICUT------	17	1	1,327	-372	47	2.8
DELAWARE----------	0	-4	0	-417	10	0.0
IDAHO-------------	0	-3	0	-614	168	0.0
ILLINOIS----------	2	2	118	118	234	0.1
INDIANA-----------	79	23	4,271	1,049	207	2.1
IOWA--------------	514	211	25,798	10,987	389	6.6
MAINE-------------	0	-3	0	-199	58	0.0
MICHIGAN----------	20	-1	1,608	-763	356	0.4
NEW HAMPSHIRE----	3	3	249	249	30	0.8
NEW JERSEY-------	28	6	1,692	326	41	4.1
NEW YORK---------	2,099	213	134,941	16,465	921	14.7
OKLAHOMA---------	9	9	696	696	110	0.6
OREGON-----------	1	-1	17	-347	97	0.0
PENNSYLVANIA-----	1,121	134	59,322	5,975	730	8.1
VERMONT----------	67	12	4,513	825	187	2.4
NCDHIP TOTAL-----	3,965	607	237,765	37,191	11,107	2.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 20.--ENROLLMENT IN THE SUPERVISED MILK-ONLY-RECORDS PLAN, JANUARY 1, 1982

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARIZONA	3	3	707	707	79	0.9
ARKANSAS	3	-1	337	-77	84	0.4
COLORADO	4	4	746	746	75	1.0
CONNECTICUT	4	1	824	132	47	1.8
FLORIDA	93	6	37,157	7,867	190	19.6
GEORGIA	82	22	13,598	2,812	131	10.4
HAWAII	4	4	2,279	2,279	13	17.5
IDAHO	2	1	532	164	168	0.3
ILLINOIS	47	-2	3,047	207	234	1.3
INDIANA	2	0	472	114	207	0.2
IOWA	11	0	954	-172	389	0.2
KANSAS	7	0	353	9	124	0.3
KENTUCKY	13	12	1,075	990	240	0.4
MAINE	1	0	518	30	58	0.9
MARYLAND	3	3	211	211	122	0.2
MASSACHUSETTS	1	0	153	-37	45	0.3
MICHIGAN	18	-66	3,110	-5,743	396	0.8
MINNESOTA	0	-6	0	-870	905	0.0
MISSOURI	2	0	563	36	245	0.2
NEVADA	1	1	91	91	16	0.6
NEW HAMPSHIRE	1	0	132	16	30	0.4
NEW JERSEY	1	0	184	5	41	0.4
NEW YORK	2	1	292	233	921	0.0
NORTH CAROLINA	15	-2	2,365	492	133	1.8
NORTH DAKOTA	2	-1	106	-66	92	0.1
OHIO	5	5	344	344	382	0.1
OKLAHOMA	8	1	808	174	110	0.7
PENNSYLVANIA	0	-3	0	-224	730	0.0
SOUTH CAROLINA	6	-1	745	-123	48	1.6
SOUTH DAKOTA	46	8	2,858	435	155	1.8
TEXAS	13	2	1,784	445	325	0.5
UTAH	2	2	195	195	86	0.2
VIRGIN ISLANDS	4	3	528	323	1	88.0
WASHINGTON	4	4	809	809	207	0.4
WISCONSIN	0	-31	0	-2,288	1,830	0.0
NCDHIP TOTAL	410	-30	77,877	10,266	11,107	0.7

1/ INCLUDES VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982, EXCEPT DATA FOR VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 21.--ENROLLMENT IN THE SUPERVISED AM-PM MILK-ONLY-RECORDS PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
CONNECTICUT------	1	1	83	83	47	0.2
MAINE------------	1	0	391	336	58	0.7
MICHIGAN---------	1	1	68	68	396	0.0
NEW JERSEY-------	1	0	170	12	41	0.4
NEW YORK---------	13	-4	1,690	-568	921	0.2
PENNSYLVANIA-----	1	1	108	108	730	0.0
VERMONT----------	1	-2	54	-311	187	0.0
NCDHIP TOTAL-----	19	-3	2,564	-272	11,107	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 22.--ENROLLMENT IN THE BASIC MANAGEMENT AND PRODUCTION PLAN, JANUARY 1, 1982

STATE	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/81	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	3	0	258	21	63	0.4
FLORIDA----------	1	0	330	6	190	0.2
INDIANA----------	10	-50	511	-2,199	207	0.2
KENTUCKY---------	14	0	1,173	-113	240	0.5
LOUISIANA--------	30	-9	2,685	-644	102	2.6
MISSISSIPPI------	21	0	1,923	135	97	2.0
NEW HAMPSHIRE----	5	-1	165	-8	30	0.5
NORTH CAROLINA---	7	0	637	16	133	0.5
SOUTH CAROLINA---	3	1	205	67	48	0.4
TENNESSEE--------	31	-4	2,947	-264	215	1.4
TEXAS------------	2	1	195	77	325	0.1
NCDHIP TOTAL-----	127	-62	11,029	-2,906	11,107	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 23.--ENROLLMENT IN ALL OTHER NONOFFICIAL PLANS, JANUARY 1, 1982

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/81	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
MICHIGAN---------(TMT)	22	-2	1,437	26	396	0.4
NORTH DAKOTA-----(WADAM)	12	12	530	530	92	0.6
NCDHIP TOTAL-----	34	10	1,967	556	11,107	0.0

1/ (TMT) = TRIMONTHLY TESTING; (WADAM) = WEIGH-A-DAY-A-MONTH.

2/ PRELIMINARY DATA FOR JANUARY 1, 1982, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1982.

TABLE 24.--ENROLLMENT BY CATEGORY OF PLAN AND STATE FOR DAIRY GOATS, JANUARY 1, 1982

STATE 1/	OFFICIAL DAIRY HERD IMPROVEMENT		DAIRY HERD IMPROVEMENT REGISTRY		NONOFFICIAL PLANS		ALL TESTING PLANS		CHANGE IN HERDS FROM 1/1/81	CHANGE IN DOES FROM 1/1/81
	HERDS	DOES	HERDS	DOES	HERDS	DOES	HERDS	DOES		
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ALABAMA----------	0	0	6	33	0	0	6	33	-1	-7
ARIZONA----------	2	10	51	380	0	0	53	390	-4	51
ARKANSAS---------	7	66	25	402	0	0	32	468	4	85
CALIFORNIA-------	24	319	264	3,163	2	39	290	3,521	-22	-465
COLORADO---------	6	35	43	211	0	0	49	246	-2	-58
CONNECTICUT------	13	43	6	106	0	0	21	149	4	8
DELAWARE---------	6	21	1	3	0	0	7	24	3	9
FLORIDA----------	4	28	26	195	0	0	30	223	10	-3
GEORGIA----------	0	0	17	99	0	0	17	99	0	27
IDAHO------------	5	24	23	151	0	0	28	175	20	81
ILLINOIS---------	1	16	20	161	1	3	22	180	9	49
INDIANA----------	1	9	9	64	0	0	10	73	-2	-17
IOWA-------------	6	79	11	90	2	8	19	177	2	25
KANSAS-----------	9	36	17	82	0	0	26	118	6	14
KENTUCKY---------	1	10	0	0	0	0	1	10	0	9
LOUISIANA--------	5	16	5	42	0	0	10	58	4	25
MAINE------------	39	218	8	68	0	0	47	286	0	-111
MARYLAND---------	11	226	0	0	0	0	11	226	0	29
MASSACHUSETTS----	20	111	1	2	0	0	21	113	-1	-26
MICHIGAN---------	11	54	33	223	2	7	46	284	16	45
MINNESOTA--------	1	7	15	174	2	16	18	197	0	24
MISSISSIPPI------	0	0	1	7	0	0	1	7	1	7
MISSOURI---------	14	187	17	242	3	44	34	473	6	67
MONTANA----------	0	0	14	63	0	0	14	63	5	33
NEBRASKA---------	1	13	2	14	1	27	4	54	0	41
NEVADA-----------	19	124	0	0	0	0	19	124	6	30
NEW HAMPSHIRE----	15	88	7	74	0	0	22	162	1	21
NEW JERSEY-------	23	148	10	117	0	0	33	265	18	8
NEW MEXICO-------	5	155	13	101	0	0	18	256	1	138
NEW YORK---------	77	418	30	232	1	33	108	683	38	188
NORTH CAROLINA---	0	0	9	63	0	0	9	63	-4	-52
NORTH DAKOTA-----	0	0	2	15	0	0	2	15	1	6
OHIO-------------	4	57	57	432	2	19	63	508	5	24
OKLAHOMA---------	12	98	21	281	0	0	33	379	7	37
OREGON-----------	23	213	193	1,618	0	0	216	1,831	41	562
PENNSYLVANIA-----	5	74	21	187	0	0	26	261	12	66
PUERTO RICO------	1	112	0	0	0	0	1	112	0	71
RHODE ISLAND-----	5	39	1	18	0	0	6	57	-1	-21
SOUTH CAROLINA---	0	0	5	34	0	0	5	34	2	-8
TENNESSEE--------	2	6	18	78	0	0	20	84	1	-28
TEXAS------------	6	29	33	345	1	2	40	376	1	-15
UTAH-------------	4	41	4	27	1	3	9	71	6	55
VERMONT----------	6	22	7	107	0	0	13	129	1	-48
VIRGINIA---------	9	95	15	121	0	0	24	216	3	59
WASHINGTON-------	3	34	64	438	1	7	68	479	11	1
WEST VIRGINIA----	6	55	1	7	0	0	7	62	1	23
WISCONSIN--------	10	78	35	442	7	67	52	587	-9	-192
WYOMING----------	4	40	1	8	0	0	5	48	5	48
NCDHIP TOTAL-----	426	3,454	1,164	10,720	26	275	1,616	14,449	205	915

1/ INCLUDES PUERTO RICO.

TABLE 25.--TYPES OF SERVICES BY STATE FOR COWS AND GOATS IN NCDHIP, JANUARY 1, 1982

STATE 1/	COW HERDS	COWS	DOE HERDS	DOES
	NUMBER	NUMBER	NUMBER	NUMBER
		MASTITIS SCREENING		
ALABAMA----------	102	12,873	0	0
ALASKA-----------	3	231	0	0
ARIZONA----------	105	43,232	3	39
ARKANSAS---------	43	2,512	0	0
CALIFORNIA-------	1,098	450,574	93	1,770
COLORADO---------	255	33,643	21	136
CONNECTICUT------	64	6,284	0	0
DELAWARE---------	2	80	0	0
FLORIDA----------	39	12,509	0	0
GEORGIA----------	222	28,834	0	0
HAWAII-----------	11	6,151	0	0
IDAHO------------	95	14,531	10	53
ILLINOIS---------	508	31,862	0	0
INDIANA----------	143	9,575	0	0
IOWA-------------	868	48,044	0	0
KANSAS-----------	429	30,919	0	0
KENTUCKY---------	200	13,133	0	0
LOUISIANA--------	27	2,500	0	0
MAINE------------	136	7,032	7	42
MARYLAND---------	250	21,445	0	0
MASSACHUSETTS----	60	3,193	0	0
MICHIGAN---------	843	66,896	0	0
MINNESOTA--------	3,038	154,848	0	0
MISSISSIPPI------	2	293	0	0
MISSOURI---------	366	35,664	0	0
MONTANA----------	92	8,521	8	27
NEBRASKA---------	95	6,627	0	0
NEVADA-----------	41	8,383	1	3
NEW HAMPSHIRE----	101	6,822	7	76
NEW JERSEY-------	112	8,982	8	44
NEW MEXICO-------	26	16,063	1	120
NEW YORK---------	2,425	159,861	26	180
NORTH CAROLINA---	258	29,884	0	0
NORTH DAKOTA-----	51	3,278	0	0
OHIO-------------	1,167	71,058	12	152
OKLAHOMA---------	125	9,035	0	0
OREGON-----------	177	24,517	1	12
PENNSYLVANIA-----	2,954	160,726	0	0
PUERTO RICO------	30	4,486	0	0
RHODE ISLAND-----	6	382	4	28
SOUTH CAROLINA---	68	10,450	0	0
SOUTH DAKOTA-----	238	15,501	0	0
TENNESSEE--------	347	33,713	0	0
TEXAS------------	167	22,251	0	0
UTAH-------------	398	45,198	7	64
VERMONT----------	329	19,254	2	7
VIRGINIA---------	513	50,405	0	0
WASHINGTON-------	570	87,710	6	71
WEST VIRGINIA----	40	3,751	0	0
WISCONSIN--------	4,395	223,543	0	0
WYOMING----------	11	762	0	0
NCDHIP TOTAL-----	23,645	2,068,221	217	2,824
		PROTEIN		
ALABAMA----------	17	2,298	0	0
ARKANSAS---------	5	334	1	54
		PROTEIN (CON)		
CALIFORNIA-------	58	12,570	11	57
COLORADO---------	254	33,580	39	199
CONNECTICUT------	37	2,324	0	0
DELAWARE---------	3	115	0	0
FLORIDA----------	4	769	0	0
GEORGIA----------	35	4,143	0	0
IDAHO------------	155	13,508	15	80
ILLINOIS---------	36	1,720	0	0
INDIANA----------	582	36,958	0	0
IOWA-------------	104	4,736	0	0
KENTUCKY---------	41	2,535	0	0
MAINE------------	41	2,270	7	43
MARYLAND---------	6	826	0	0
MASSACHUSETTS----	40	1,984	0	0
MICHIGAN---------	80	4,665	18	96
MISSISSIPPI------	1	115	0	0
MONTANA----------	43	3,547	5	11
NEBRASKA---------	2	106	0	0
NEVADA-----------	1	258	0	0
NEW HAMPSHIRE----	55	3,050	0	0
NEW JERSEY-------	235	17,030	33	265
NEW MEXICO-------	4	863	0	0
NEW YORK---------	6,329	408,791	108	683
NORTH CAROLINA---	32	2,952	0	0
NORTH DAKOTA-----	3	137	0	0
OHIO-------------	451	25,420	35	285
OKLAHOMA---------	9	506	0	0
OREGON-----------	53	6,216	1	11
PENNYSLVANIA-----	163	8,851	0	0
SOUTH CAROLINA---	29	4,529	0	0
SOUTH DAKOTA-----	5	305	0	0
TENNESSEE--------	1	189	0	0
TEXAS------------	668	86,500	0	0
UTAH-------------	398	45,069	7	60
VERMONT----------	207	9,514	2	55
WASHINGTON-------	783	109,610	61	449
WEST VIRGINIA----	2	215	0	0
WISCONSIN--------	6,349	309,712	0	0
WYOMING----------	21	1,817	1	8
NCDHIP TOTAL-----	17,342	1,170,637	344	2,356
		SNF		
ALASKA-----------	3	231	0	0
CALIFORNIA-------	717	247,551	17	662
COLORADO---------	1	63	0	0
IDAHO------------	10	690	0	0
IOWA-------------	4	247	0	0
KANSAS-----------	15	932	0	0
MARYLAND---------	0	0	1	26
MONTANA----------	0	0	3	231
NEBRASKA---------	6	384	0	0
NEVADA-----------	9	1,414	0	0
NORTH DAKOTA-----	2	74	0	0
OREGON-----------	43	3,692	29	274
UTAH-------------	1	159	0	0
NCDHIP TOTAL-----	811	255,437	50	1,193

1/ INCLUDES PUERTO RICO IN MASTITIS SCREENING.

TABLE 26.--SUMMARY OF VERIFIED IDENTIFICATION PROGRAM (VIP) ACTIVITY BY STATE, 1980-81 AND ALL YEARS

STATE 1/	1980				1981				ALL YEARS 2/			
	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ARKANSAS--------	6	0	212	212	7	0	133	133	20	0	524	524
CALIFORNIA-------	0	0	0	0	0	0	0	0	3	47	0	47
CONNECTICUT------	0	0	0	0	0	0	0	0	1	0	1	1
DELAWARE---------	1	0	11	11	1	0	6	6	5	0	37	37
FLORIDA----------	3	0	75	75	2	0	63	63	11	0	249	249
IDAHO------------	4	4	81	85	7	5	193	198	15	15	352	367
ILLINOIS---------	29	0	524	524	39	4	611	615	156	11	2,565	2,576
INDIANA----------	9	0	242	242	6	0	154	154	35	0	876	876
IOWA-------------	107	9	1,277	1,286	143	35	1,519	1,554	569	81	7,262	7,343
KANSAS-----------	128	9	2,495	2,504	161	14	3,103	3,117	596	42	14,001	14,043
KENTUCKY---------	3	1	74	75	2	0	58	58	18	3	377	380
MAINE------------	9	0	58	58	7	0	52	52	31	3	303	306
MARYLAND---------	25	0	330	330	62	6	2,060	2,066	112	8	2,746	2,754
MASSACHUSETTS----	1	0	6	6	3	0	11	11	8	0	120	120
MICHIGAN---------	10	1	136	137	12	2	93	95	59	12	756	768
MINNESOTA--------	80	16	935	951	97	6	1,516	1,522	389	46	6,024	6,070
MISSOURI---------	122	11	1,686	1,697	135	23	1,924	1,947	478	77	7,218	7,295
MONTANA----------	1	0	17	17	0	0	0	0	1	0	17	17
NEBRASKA---------	51	17	996	1,013	53	30	907	937	200	92	3,976	4,068
NEW HAMPSHIRE----	1	0	13	13	0	0	0	0	8	1	41	42
NEW JERSEY-------	0	0	0	0	0	0	0	0	1	0	3	3
NEW YORK---------	62	2	1,036	1,038	64	1	870	871	352	15	4,849	4,864
NORTH CAROLINA---	1	0	30	30	1	0	28	28	9	0	98	98
NORTH DAKOTA-----	2	0	18	18	2	1	36	37	16	2	138	140
OHIO-------------	58	10	1,092	1,102	80	7	1,540	1,547	252	28	4,109	4,137
OKLAHOMA---------	12	6	366	372	18	3	335	338	50	12	1,365	1,377
PENNSYLVANIA-----	21	0	160	160	21	1	191	192	105	2	976	978
PUERTO RICO------	10	3	72	75	6	3	25	28	16	6	97	103
SOUTH CAROLINA---	0	0	0	0	3	0	16	16	4	0	21	21
SOUTH DAKOTA-----	12	0	208	208	12	1	171	172	40	1	522	523
TEXAS------------	0	0	0	0	0	0	0	0	1	0	1	1
UTAH-------------	3	0	22	22	2	0	2	2	15	2	260	262
VERMONT----------	2	0	22	22	1	0	26	26	4	0	49	49
VIRGINIA---------	1	0	50	50	6	0	163	163	7	0	213	213
WASHINGTON-------	0	0	0	0	0	0	0	0	3	0	96	96
WISCONSIN--------	65	1	487	488	70	0	783	783	238	17	2,647	2,664
NCDHIP TOTAL-----	839	90	12,731	12,821	1,023	142	16,589	16,731	3,828	523	62,889	63,412

1/ INCLUDES PUERTO RICO.
2/ INCLUDES 1976-81.

TABLE 27.--SUMMARY OF OFFICIAL DAIRY RECORDKEEPING PLANS, 1906-82 1/

YEAR 2/	ASSOCIATIONS 3/	SUPERVISORS 3/	HERDS ENROLLED	COWS ENROLLED	COWS PER HERD	COWS ENROLLED	HERDS REPORTED	COWS REPORTED	AVERAGE PRODUCTION			ALL MILK COWS 4/	ALL PLANS
									MILK	FAT	FAT		
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	PCT	NUMBER	NUMBER	LB	PCT	LB	THOUSANDS	PCT
1906	1	---	31	239	7.7	(5/)	---	---	5,300	4.06	215	17,110	(5/)
1907	4	---	---	1,606	---	(5/)	---	---	5,366	4.10	220	17,509	(5/)
1908	6	---	---	3,921	---	(5/)	---	---	---	---	---	17,872	(5/)
1909	25	---	---	11,921	---	0.1	---	---	---	---	---	18,081	0.1
1910	40	---	---	6/25,000	---	0.1	---	---	6/5,730	3.96	6/227	18,300	0.1
1911	64	---	---	6/40,000	---	0.2	---	---	---	---	---	18,302	0.2
1912	82	---	---	6/43,000	---	0.2	---	---	---	---	---	18,397	0.2
1913	100	---	---	47,150	---	0.3	---	---	---	---	---	18,460	0.3
1914	163	---	---	73,280	---	0.4	---	---	---	---	---	18,701	0.4
1915	211	---	---	105,526	---	0.6	---	---	---	---	---	19,150	0.6
1916	346	---	---	150,677	---	0.8	---	---	---	---	---	19,632	0.8
1917	459	---	11,720	216,831	18.5	1.1	---	---	---	---	---	20,092	1.1
1918	353	---	9,778	172,518	17.6	0.8	---	---	---	---	---	20,416	0.8
1919	385	---	10,000	167,313	16.7	0.8	---	---	---	---	---	20,425	0.6
1920	468	---	11,948	203,472	17.0	1.0	---	---	6,175	4.00	247	20,335	1.0
1921	452	---	11,209	193,928	17.3	1.0	---	---	---	---	---	20,336	1.0
1922	513	---	12,508	215,321	17.2	1.0	---	---	---	---	---	20,731	1.0
1923	627	---	16,357	277,010	16.9	1.3	---	---	---	---	---	21,018	1.3
1924 7/	---	---	---	---	---	---	---	---	---	---	---	21,211	---
1925	732	---	18,677	307,073	16.4	1.4	---	42,302	7,189	3.95	284	21,417	1.4
1926	777	---	19,540	327,653	16.8	1.5	---	103,443	7,331	3.96	290	21,503	1.5
1927	837	---	21,128	362,014	17.1	1.7	---	116,509	7,411	3.95	293	21,312	1.7
1928	947	---	23,327	414,891	17.8	2.0	---	152,412	7,476	3.96	296	21,191	2.0
1929	1,090	---	26,182	465,804	17.8	2.2	---	194,859	7,498	3.97	298	21,223	2.2
1930	1,143	---	27,888	507,549	18.2	2.4	---	235,624	7,642	3.96	303	21,618	2.4
1931	1,112	---	26,308	510,714	19.4	2.3	---	219,924	7,812	3.92	306	22,218	2.3
1932	1,005	---	20,351	427,044	21.0	1.9	---	186,683	7,858	3.95	310	23,108	1.9
1933	881	---	15,447	358,501	23.2	1.5	---	163,014	7,849	3.99	313	24,105	1.5
1934	793	---	13,694	325,837	23.8	1.3	---	203,930	8,015	4.02	322	25,062	1.3
1935	809	---	15,573	364,218	23.4	1.5	---	200,367	7,977	4.04	322	25,198	1.5
1936	876	---	17,344	404,412	23.3	1.7	---	257,248	7,912	4.03	319	24,187	1.7
1937	992	---	20,772	496,562	23.9	2.1	---	354,568	7,923	4.04	320	23,727	2.1
1938	1,106	---	23,701	558,993	23.6	2.4	---	448,025	7,831	4.05	317	23,340	2.4
1939	1,228	---	25,949	625,284	24.1	2.7	---	507,563	7,977	4.05	323	23,215	2.7
1940	1,300	---	27,948	676,141	24.2	2.9	---	545,382	8,133	4.07	331	23,273	2.9
1941	1,383	---	31,381	763,502	24.3	3.2	---	591,103	8,225	4.07	335	23,671	3.2
1942	1,421	---	32,957	816,117	24.8	3.4	---	514,758	8,323	4.07	339	24,288	3.4
1943	1,057	---	24,155	616,972	25.5	2.5	---	375,914	8,325	4.06	338	25,027	2.5
1944	954	---	20,825	561,587	27.0	2.2	---	383,337	8,296	4.05	336	25,451	2.2
1945	949	---	21,254	577,200	27.2	2.3	---	384,360	8,592	4.03	346	25,597	2.3
1946	1,124	---	23,331	627,878	27.0	2.5	---	413,554	8,635	4.04	349	25,033	2.5
1947	1,426	---	28,812	775,546	26.9	3.2	---	533,061	8,638	4.03	348	24,089	3.2
1948	1,668	---	33,274	886,129	26.6	3.8	---	620,385	8,675	4.03	350	23,329	3.8
1949	1,787	---	35,851	943,939	26.3	4.2	---	729,150	8,907	4.03	359	22,336	4.2
1950	1,973	---	40,100	1,088,872	27.2	4.9	---	836,922	9,172	4.03	370	22,024	4.9
1951	2,143	---	42,949	1,186,615	27.6	5.4	---	885,859	9,195	4.02	370	21,944	5.4
1952	2,109	---	40,105	1,166,297	29.1	5.4	---	928,376	9,192	3.98	366	21,505	5.4
1953	2,151	---	40,983	1,226,588	29.9	5.8	---	1,020,326	9,253	3.98	368	21,338	5.8
1954	2,175	---	41,254	1,311,698	31.8	6.1	---	1,079,557	9,363	3.97	372	21,691	6.1
1955	2,288	---	41,240	1,333,866	32.3	6.2	---	1,175,378	9,502	3.95	375	21,581	6.2
1956	2,266	---	40,984	1,406,306	34.4	6.7	---	1,229,971	9,713	3.94	383	21,044	8/8.5
1957	1,700	2,310	41,638	1,479,799	35.5	7.2	---	1,256,129	9,894	3.93	389	20,501	9/9.3
1958	1,544	2,293	39,985	1,548,884	38.7	7.8	---	1,345,750	10,068	3.91	394	19,774	10.7
1959	1,500	2,337	40,284	1,607,538	39.9	8.6	---	1,406,665	10,327	3.88	401	18,711	11.9
1960	1,509	2,397	41,293	1,746,752	42.3	9.8	---	10/1,343,725	10/10,561	3.87	10/409	17,901	13.6
1961	1,395	2,448	42,558	1,867,469	43.9	10.7	28,649	1,280,785	10,796	3.87	418	17,515	14.8
1962	1,436	2,472	42,034	1,958,355	46.6	11.4	32,794	1,531,826	11,032	3.86	426	17,243	15.8
1963	1,441	2,516	41,937	2,006,534	47.8	11.9	35,378	1,674,803	11,286	3.85	434	16,842	16.5
1964	1,420	2,474	40,670	2,010,144	49.4	12.4	35,689	1,746,475	11,685	3.83	447	16,260	17.4
1965	1,424	2,439	40,075	2,087,581	52.1	13.3	35,604	1,821,252	11,976	3.82	457	15,677	18.9
1966	1,418	2,378	38,879	2,058,592	52.9	13.8	34,886	1,852,533	12,127	3.81	462	14,953	19.8
1967	1,344	2,319	37,683	2,098,919	55.7	14.9	34,515	1,890,024	12,307	3.80	468	14,071	21.2
1968	1,318	2,304	36,869	2,131,929	57.8	15.9	33,560	1,924,200	12,397	3.80	471	13,415	22.6
1969	1,289	2,250	35,617	2,138,953	60.1	16.7	33,130	1,959,647	12,553	3.79	476	12,832	23.5
1970	1,267	2,225	34,308	2,122,011	61.9	17.2	31,138	1,937,390	12,750	3.79	483	12,307	25.3
1971	1,274	2,201	33,996	2,218,402	65.3	18.6	30,699	1,995,463	13,000	3.76	489	11,909	26.8
1972	1,247	2,186	33,197	2,244,685	67.6	19.1	30,190	2,050,132	13,226	3.75	496	11,776	27.2
1973	1,231	2,164	33,578	2,359,611	70.3	20.3	30,826	2,177,626	13,287	3.76	499	11,622	28.7
1974	1,130	2,209	33,146	2,416,669	72.9	21.4	30,280	2,221,349	13,163	3.75	493	11,297	30.2
1975	1,105	2,183	32,222	2,432,961	75.5	21.7	29,543	2,216,817	13,421	3.76	505	11,220	31.0
1976	1,051	2,218	32,232	2,438,365	75.7	22.0	29,634	2,240,752	13,632	3.75	511	11,067	31.4
1977	1,028	2,266	33,755	2,581,164	76.5	23.4	30,764	2,373,261	14,435	3.73	539	11,035	33.5
1978	1,046	2,432	34,972	2,704,064	77.3	24.7	31,783	2,476,946	14,631	3.70	542	10,930	35.4
1979	1,045	2,541	36,105	2,792,175	77.3	25.7	32,831	2,571,361	14,644	3.70	542	10,853	36.8
1980	1,025	2,638	37,576	2,966,558	78.9	26.8	34,449	2,771,379	14,786	3.70	547	11,074	37.9
1981	1,066	2,824	39,524	3,197,353	80.8	28.7	35,206	2,867,177	14,960	3.70	553	11,135	40.2
1982	1,084	2,916	40,933	3,382,977	82.6	30.5	36,690	3,047,260	15,134	3.68	558	11,107	43.1

1/ DASHES INDICATE DATA NOT REPORTED OR CALCULATED.

2/ HERDS AND COWS ARE ENROLLED AS OF JANUARY 1 OF THE STATED YEAR. FROM 1981, THE REPORTED HERDS AND COWS AND AVERAGE PRODUCTION WILL BE FOR THE CALENDAR YEAR IMMEDIATELY PRECEDING THE STATED YEAR. INCLUDES ALL PLANS.

3/ INCLUDES ALL PLANS. PRIOR TO 1957, ASSOCIATIONS WERE COUNTED BASED ON SUPERVISOR CIRCUITS.

4/ 1906-24, U.S. ESTIMATE OF COWS AND HEIFERS 2 YEARS OLD AND OLDER JANUARY 1, KEPT FOR MILK, EXCLUDING THOSE NOT FRESH. ESTIMATED BY SUBTRACTING 1,120,000 FROM DATA IN TABLE 543, "AGRICULTURAL STATISTICS, 1967," FOR COWS AND HEIFERS 2 YEARS AND OLDER, KEPT FOR MILK.

1925-70, U.S. AVERAGE OF MILK COWS ON FARMS FOR PREVIOUS YEAR, EXCLUDING HEIFERS NOT YET FRESH. ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA).

1971-79, U.S. MILK COWS THAT HAVE CALVED JANUARY 1 OF STATED YEAR. ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) AND PUBLISHED IN "CATTLE." FINAL ESTIMATES FOR 1971-75 ARE IN "STATISTICAL BULLETIN 589." DATA FOR 1976-79 ARE PRELIMINARY.

5/ LESS THAN 0.05 PERCENT.

6/ ESTIMATED.

7/ DATE FOR COLLECTING DATA CHANGED IN 1924 FROM JULY 1 TO JANUARY 1, SO 1924 DATA WERE OMITTED.

8/ OWNER-SAMPLER TABULATION BEGAN IN 1956.

9/ WEIGH-A-DAY-A-MONTH TABULATION BEGAN IN 1957.

10/ AVERAGES FOR 1959 AND 1961. NATIONAL TESTING YEAR CHANGED IN 1960 TO BEGIN MAY 1.

TABLE 28.--SUMMARY OF NONOFFICIAL DAIRY RECORDKEEPING PLANS FOR WHICH PRODUCTION AVERAGES ARE CALCULATED, 1956-82 1/ 2/

YEAR	HERDS EN-ROLLED	COWS EN-ROLLED	COWS PER HERD	COWS ENROLLED	HERDS REPORTED	COWS REPORTED	AVERAGE PRODUCTION		
							MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	NUMBER	NUMBER	LB	PCT	LB
1956------	17,110	374,479	21.9	1.8	---	---	---	---	---
1957------	20,778	405,090	19.5	2.0	---	---	---	---	---
1958------	21,269	490,001	23.0	2.5	---	---	---	---	---
1959------	22,807	549,916	24.1	2.9	---	---	---	---	---
1960------	24,274	615,899	25.4	3.4	---	---	---	---	---
1961------	24,498	655,885	26.8	3.7	---	---	---	---	---
1962------	24,954	698,302	28.0	4.1	---	---	---	---	---
1963------	25,376	726,478	28.6	4.3	14,761	423,545	10,606	3.73	396
1964------	25,598	752,229	29.4	4.6	13,574	385,493	10,885	3.71	404
1965------	26,604	818,406	30.8	5.2	18,409	559,608	11,402	3.71	423
1966------	26,259	839,838	32.0	5.6	19,172	598,133	11,472	3.70	425
1967------	25,439	825,127	32.4	5.9	17,912	575,816	11,607	3.72	432
1968------	25,143	847,485	33.7	6.3	17,318	592,647	11,847	3.72	441
1969------	24,359	842,330	34.6	6.6	17,908	614,939	11,932	3.72	444
1970------	23,281	839,343	36.1	6.8	16,971	611,819	12,185	3.72	453
1971------	22,581	836,751	37.1	7.0	16,569	612,080	12,413	3.71	460
1972------	21,345	805,555	37.7	6.8	16,107	618,088	12,544	3.74	466
1973------	20,895	806,270	38.6	6.9	16,183	631,269	12,488	3.75	468
1974------	19,738	783,195	39.7	6.9	16,037	639,964	12,353	3.75	463
1975------	18,112	749,807	41.4	6.7	14,704	610,910	12,503	3.80	475
1976------	19,999	943,451	47.2	8.5	16,784	753,089	13,104	3.79	497
1977------	21,000	1,006,359	47.9	9.1	17,662	815,988	13,539	3.76	509
1978------	22,626	1,159,776	51.3	9.7	18,675	891,738	13,771	3.75	516
1979------	22,745	1,201,500	52.8	11.1	19,248	933,631	13,847	3.77	522
1980------	22,943	1,225,311	53.4	11.1	19,328	953,595	13,969	3.77	527
1981------	23,451	1,282,715	54.7	11.5	19,617	980,870	14,080	3.76	529
1982------	24,940	1,407,203	56.4	12.7	21,343	1,170,575	14,101	3.74	530

1/ DASHES INDICATE DATA NOT TABULATED OR AVAILABLE. OWNER-SAMPLER PLAN BEGAN IN 1956. STARTING IN 1976, ALL DATA ARE FOR THE FOLLOWING NONOFFICIAL PLANS: OWNER-SAMPLER (EXCLUDING OS-BAF AND OS-PTF), ALTERNATE AM-PM, COMMERCIAL, BIMONTHLY, AND TRIMONTHLY.

2/ HERDS AND COWS ARE ENROLLED AS OF JANUARY 1 OF THE STATED YEAR. FROM 1981 ON, THE REPORTED HERDS AND COWS AND AVERAGE PRODUCTION WILL BE FOR THE CALENDAR YEAR IMMEDIATELY PRECEDING THE STATED YEAR.

TABLE 29.--EXTENSION DAIRY SPECIALISTS ADVISING ON THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM AS OF JANUARY 1, 1982

ALABAMA---------HOWARD S. JONES, EXTENSION ANIMAL SCIENCE, AUBURN UNIVERSITY, AUBURN 36830.
ALASKA----------ARTHUR L. BRUNDAGE, AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF ALASKA, PALMER 99645.
ARIZONA---------DENNIS V. ARMSTRONG, DEPT. OF ANIMAL SCIENCES, UNIVERSITY OF ARIZONA, TUCSON 85721.
ARKANSAS--------RALPH WILLIAMS, COOPERATIVE EXTENSION SERVICE, P.O. BOX 391, LITTLE ROCK 72203.
CALIFORNIA------FRANK D. MURRILL, DEPT. OF ANIMAL SCIENCE, UNIVERSITY OF CALIFORNIA, DAVIS 95616.
COLORADO--------DAWSON C. JORDAN, DEPT. OF ANIMAL SCIENCES, COLORADO STATE UNIVERSITY, FORT COLLINS 80523.
CONNECTICUT-----ROBERT H. BENSON, DEPT. OF ANIMAL INDUSTRIES, UNIVERSITY OF CONNECTICUT, STORRS 06268.
DELAWARE--------GEORGE F. W. HAENLEIN, DEPT. OF ANIMAL SCIENCE AND AGRICULTURAL BIOCHEMISTRY, UNIVERSITY OF DELAWARE, NEWARK 19711.
FLORIDA---------DANIEL W. WEBB, DEPT. OF DAIRY SCIENCE, UNIVERSITY OF FLORIDA, GAINESVILLE 32611.
GEORGIA---------JAMES S. EDWARDS, DEPT. OF ANIMAL AND DAIRY SCIENCE, UNIVERSITY OF GEORGIA, ATHENS 30602.
HAWAII----------RICHARD STANLEY, DEPT. OF ANIMAL SCIENCE, UNIVERSITY OF HAWAII, HONOLULU 96822.
IDAHO-----------EDWARD A. FIEZ, SOUTHWEST RESEARCH AND EXTENSION CENTER, RTE. 8, BOX 8478, CALDWELL, IDAHO 83605.
ILLINOIS--------GERHARD W. HARPESTAD, DAIRY SCIENCE DEPT., UNIVERSITY OF ILLINOIS, URBANA 61801.
INDIANA---------WILLARD M. DILLON, DEPT. OF ANIMAL SCIENCES, PURDUE UNIVERSITY, WEST LAFAYETTE 47907.
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Dairy Herd Improvement Letter

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NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

- USDA Summary of 1981 U.S. Cow Herd Averages
- USDA Summary of 1981 U.S. Goat Herd Averages

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Dairy Herd Improvement Letter

USDA SUMMARY OF 1981 U.S. COW HERD AVERAGES

By Gerald J. King and George R. Wiggans[1]

The U.S. Department of Agriculture (USDA) received 58,314 cow herd records ending during calendar year 1981 from 9 dairy records processing centers (DRPC's). These DRPC's process records of cows enrolled in the National Cooperative Dairy Herd Improvement Program (NCDHIP). Records from 36,690 herds, including 3,047,260.0 cow-years, on official NCDHIP test passed USDA edits (see appendix) and are summarized in this report. Records from 21,343 herds, including 1,170,575.0 cow-years, on nonofficial NCDHIP test also are summarized. Cow-years are calculated by dividing all days on test, including dry days, by 365. For 1981, records for 369,788.0 more cow-years and 3,210 more herds were summarized than for 1980, which is greater than the increase in NCDHIP participation as of January 1, 1982.[2] More than half the increase in cow-years was for nonofficial records, partly because of the inclusion of records with information for milk yield but not fat yield. The numbers of cow-years and herds included are less than 100 percent of total enrollment because a herd was not included if more than one record was received, a herd had fewer than five cows, time on test was less than 365 days, or average milk yield was less than 4,000 pounds or greater than 28,000.

Tables 1-6 and 9 include information on milk yield for all herds, on fat yield for herds with fat yield or percentage within established limits (see appendix), and on protein yield for herds with protein yield or percentage within established limits (see appendix) and reported by the New York and Iowa DRPC's. Records for herds with 60,114.5 cow-years had acceptable protein data. Records with protein data from other DRPC's usually had low protein percentages, probably because averages were computed incorrectly with information from herds that had been on protein test for only part of the year. Solids-not-fat (SNF) yield also was summarized (table 8), and herds with 38,217.3 cow-years had acceptable SNF data.

Information on amount of feed, feed cost, and income, in addition to milk and fat yields, was reported only by the Iowa, New York, North Carolina, and Pennsylvania DRPC's. Therefore, records with feeding and other information were available only for slightly less than half the total number of herds summarized. Records with missing or unreasonable amounts of feed, feed costs, or value of product also were not included in averages for herd records with feeding and other information. The averages including feeding and other information are presented separately from averages for all records.

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[1] Dairy husbandman and research geneticist (animal), respectively, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Norman, H. D., Myers, E. F., and Dickinson, F. N. National Cooperative Dairy Herd Improvement Program participation report--State activities as of January 1, 1982. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 58(2), 27 pp. 1982.

Herd and cow-year numbers and averages reported in State newsletters may differ from values reported here because of differences in limits or reporting periods.

1981 Official Plans

Summaries of herds enrolled in official plans are given in tables 1-3 for the 1981 test year. No records for herds enrolled in official plans were reported for the Virgin Islands for 1981.

Table 1 presents a summary of all official records for milk, fat, and protein. There were 1,484 more herds and 180,083.1 more cow-years summarized in 1981 than in 1980, with an average milk yield of 15,134 pounds in 1981 compared with an average of 14,960 pounds in 1980. The number of cow-years per herd averaged 83. California had the highest average milk yield with 1,249 herds averaging 16,849 pounds. Arizona was second with 114 herds averaging 16,298 pounds; Washington, third with 618 herds averaging 16,229 pounds; and New Mexico, fourth with 54 herds averaging 16,159 pounds. Thirty-five States had average milk yields above 14,000 pounds. Average fat yield for herds with records passing edits for fat yield or percentage (records from 18 herds were eliminated) was 558 pounds, 5 pounds more than in 1980, and average fat percentage was 3.68 percent, 0.02 percent less than in 1980. Herds with protein data included 50,235.6 cow-years and averaged 15,446 pounds of milk, 588 pounds of fat, 507 pounds of protein, and 3.28 percent protein.

Table 2 summarizes the official records in table 1 grouped by milk level within breed. Compared with the 1980 records, most breeds increased in numbers of herds, with Holsteins increasing the most. For Holsteins, the modal group for milk yield was 15,000-15,999 pounds with 5,791 herds. The highest milk yield for any herd was 26,485 pounds by a Holstein herd. Most breeds had increased yield over 1980 yields.

Table 3 summarizes the official records in table 1 grouped by herd size within breed. For Holsteins, the modal group for herd size was 25-49.9 with 10,623 herds; 3 herds with more than 3,000 cow-years averaged 3,524.1 cow-years. The largest herd had 3,706.9 cow-years.

1981 Nonofficial Plans

Tables 4-6 summarize nonofficial plans. Puerto Rico and Rhode Island had no nonofficial records summarized.

Table 4 presents a summary of all nonofficial records for milk, fat, and protein. There were 1,726 more herds and 189,704.9 more cow-years summarized in 1981 than in 1980. Records from 306 of these herds had milk yield reported but no fat yield. The average number of cow-years per herd was 55. Cows on nonofficial test averaged 14,101 pounds of milk compared with an average of 14,080 in 1980. Alaska had the highest average milk yield with 15,969 pounds for two herds. Idaho was second with 38 herds averaging 15,703 pounds; California, third with 97 herds averaging 15,380 pounds; and Washington, fourth with 75 herds averaging 15,317 pounds. Thirty-six States had average milk yields for nonofficial herds above 13,000 pounds.

Average fat yield was 530 pounds for those herds reporting fat yield, 1 pound more than in 1980, and average fat percentage was 3.74, 0.02 percent less than in 1980. Records with protein data were from 9,878.9 cow-years with averages of 14,618 pounds of milk, 532 pounds of fat, 461 pounds of protein, and 3.15 percent protein.

Table 5 summarizes the nonofficial records in table 4 grouped by milk level within breed. The resulting groupings are about the same as in the previous year's report with the increase in herds and cow-years primarily for Holsteins with between 11,000 and 18,000 pounds of milk. The highest milk yield was 22,793 pounds for a Holstein herd. Guernseys and Holsteins showed slight increases in milk yield, and Red and Whites averaged 501 pounds more milk than in 1980. Other breeds showed slight decreases in milk yield, except for a decline of about 500 pounds for Milking Shorthorns. Averages for Milking Shorthorns and Red and Whites were based on records from relatively few herds.

Table 6 summarizes the nonofficial records in table 4 grouped by herd size within breed. The resulting groupings are about the same as in the previous year's report with the large increase in herd numbers occurring for herds with between 25 and 100 cows. The largest herd was a Holstein herd with 1,722.1 cow-years.

1981 Summaries for Combined Official and Nonofficial Plans

Table 7 is a summary of herds on official and nonofficial test for which feed, feed cost, value of product, and percent days in milk have been reported. Percent days in milk is a measure of the proportion of the herd milking; it can be affected by reproductive management, herd turnover rate, and length of dry period. Official herds averaged 72.5 cow-years per herd, 2.4 more than in 1980, 14,548 pounds of milk compared with 14,359 in 1980, and 535 pounds of fat compared with 530 in 1980. Average value of product was $2,008, and average feed cost was $800, resulting in an average income over feed cost for official records of $1,208, $72 higher than in 1980. Nonofficial herds averaged 61.4 cow-years per herd, 8.8 more than in 1980, 13,954 pounds of milk compared with 13,945 in 1980, and 512 pounds of fat compared with 509 in 1980. Average value of product was $1,900, and average feed cost was $740, resulting in an average income over feed cost for nonofficial records of $1,160, $60 higher than in 1980.

For some of the herds summarized, the total ration did not include all four types of feed (concentrates, succulent forage, dry forage, and pasture). Therefore, the averages for feeds, cost, and value of product were each calculated only from herds for which the information was reported; consequently, some averages represent fewer cow-years than the total.

Table 8 is a summary of SNF records reported for both official and nonofficial plans. Six States--California, Iowa, Kansas, Nebraska, North Dakota, and Oregon--reported records that passed SNF edits for 137 herds and 38,217.3 cow-years. California leads the group with 88 herds. Associated fat yield is included in the table.

Table 9 summarizes all cow herd averages by plan and includes herds and cow-years with acceptable fat or protein yield or percentage for the associated milk yield. The new system of naming NCDHIP testing plans is illustrated in this table, with the plan tags defined in the table footnote. The Weigh-A-Day-A-Month plan now is considered one of the milk-only testing plans.

Several changes are evident: DHI had 395 fewer herds than in 1980; the number of herds reported for DHI-AP more than doubled; the 2 official plans with AM-PM component sampling had a combined increase of 891 herds; DHIR increased by 390 herds; and OS-AP increased by 1,281 herds. Official and nonofficial AM-PM plans have had marked increases in number of herds reported, somewhat at the expense of DHI. However, the herds reported for DHIR increased by almost the number lost by DHI.

Some of the newer testing plans were localized as follows:

Plan tag:	State
DHI-AP	Illinois, Iowa, Minnesota, South Dakota
DHI-APCS	States served by North Carolina DRPC
DHIR-APCS	States served by North Carolina DRPC
OS-AP	Iowa, Minnesota, New York, Pennsylvania, Wisconsin
OS-MO	Illinois, Michigan, New York, South Dakota
OS-MO-AP	New York
OS-ACT	Kentucky
COMM	California, Washington
COMM-AP	Ohio
SS-AP	New York, Pennsylvania
SS-MO	Florida, Georgia

Tables 10-14 summarize cow-year data for official and nonofficial plans by test year. Cow-year totals and averages for milk and fat are summarized by test year from 1939-40 for all official herd records in table 10 and for all official herd records with feeding and other information in table 11. Cow-year totals and averages for milk and fat are summarized by test year from 1962-63 for all nonofficial herd records in table 12 and for all nonofficial herd records with feeding and other information in table 13. Table 14 compares yield of cows on official test, cows on nonofficial test, and all other cows by test year from 1962-63. In 1981, cows in official and nonofficial plans produced 5,022 and 3,989 pounds more milk, respectively, than did cows not enrolled in NCDHIP. Official cows again were over 5,000 pounds superior to cows not enrolled in NCDHIP after having a superiority under 5,000 pounds for the last 2 years. Nonofficial cows have fluctuated around a 4,000-pound superiority since 1975-76.

Table 15 summarizes yield and value of product for all cows in the United States as estimated by the Statistical Research Service, USDA.

Table 16 gives the weighted percentage of records by DRPC for cows milked three times a day (3X) as calculated from herd-average and in-progress lactation records received for the July 1982 USDA-DHIA Sire Summary. Five DRPC's included information on 3X milking in their herd-average records.

Appendix

The following edits were applied by USDA to 1981 herd-average data:

Characteristic:	Acceptable values
Record code	All codes except 9
Year	1981
State	U.S. State and territory prefix codes
Milk (lb)	4,000-28,000 unless verified
Fat (lb)	92-1,200 unless verified
Fat (percent):	
Ayrshire	2.7-6.0
Brown Swiss	2.7-6.0
Guernsey	3.3-6.7
Holstein	2.5-5.0
Jersey	3.3-7.3
Milking Shorthorn	2.7-5.9
Other breeds	2.5-7.3
Protein (lb)	60-1,050
Protein (percent):	
Ayrshire	3.15-3.75
Brown Swiss	3.26-4.09
Guernsey	3.37-4.18
Holstein	2.98-3.67
Jersey	3.63-4.42
Milking Shorthorn	2.98-3.67
Other breeds	2.98-4.42
SNF (lb)	322-2,300
SNF (percent):	
Ayrshire	8.15-9.34
Brown Swiss	8.63-9.87
Guernsey	8.61-10.19
Holstein	8.05-19.45
Jersey	8.74-10.66
Milking Shorthorn	8.05-9.46
Other breeds	8.05-10.66
Concentrate (cwt)	0-180
Succulent forage (cwt)	0-475
Dry forage (cwt)	0-200
Pasture (days)	0-366
Cost of concentrate per cwt	$1.10-$12
Value of product	$260-$3,800
Feed cost per cwt of milk	$1-$10 (Total feed cost cannot be greater than value of product.)

Table 1.--State and national cow-year totals and averages for all official herd records for milk, fat, and protein, 1981

State[1]	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
Alabama----------	198	24,024.2	13,332	197	23,897.5	13,349	3.72	496	---	---	---	---	---	---
Alaska-----------	1	60.3	13,461	1	60.3	13,461	3.92	527	---	---	---	---	---	---
Arizona----------	114	47,324.4	16,298	114	47,324.4	16,298	3.73	608	---	---	---	---	---	---
Arkansas---------	166	10,359.9	12,942	166	10,359.9	12,942	3.51	454	2	155.4	13,252	516	3.32	439
California-------	1,249	453,783.3	16,849	1,249	453,783.3	16,849	3.69	621	---	---	---	---	---	---
Colorado---------	225	29,038.8	15,063	225	29,038.8	15,063	3.58	539	---	---	---	---	---	---
Connecticut------	274	22,170.1	15,640	274	22,170.1	15,640	3.71	581	27	1,868.5	16,005	601	3.17	507
Delaware---------	45	3,970.2	16,089	45	3,970.2	16,089	3.65	586	3	114.3	14,008	575	3.41	477
Florida----------	67	18,998.1	13,137	64	18,474.3	13,127	3.49	458	---	---	---	---	---	---
Georgia----------	303	35,959.7	13,340	302	35,784.7	13,341	3.62	483	---	---	---	---	---	---
Hawaii-----------	8	3,927.5	13,189	8	3,927.5	13,189	3.18	420	---	---	---	---	---	---
Idaho------------	448	46,501.3	15,147	448	46,501.3	15,147	3.56	540	---	---	---	---	---	---
Illinois---------	1,139	66,802.9	14,280	1,139	66,802.9	14,280	3.74	534	12	540.0	13,183	520	3.40	448
Indiana----------	893	55,360.1	14,598	892	55,162.1	14,604	3.81	557	---	---	---	---	---	---
Iowa-------------	1,351	69,874.0	14,181	1,351	69,874.0	14,181	3.74	530	67	3,377.7	13,468	541	3.39	457
Kansas-----------	708	48,428.9	14,273	708	48,428.9	14,273	3.61	515	---	---	---	---	---	---
Kentucky---------	473	30,545.8	13,060	473	30,545.8	13,060	3.69	482	---	---	---	---	---	---
Louisiana--------	274	28,013.0	12,316	274	28,013.0	12,316	3.55	437	---	---	---	---	---	---
Maine------------	403	21,819.0	15,522	403	21,819.0	15,522	3.67	570	10	485.7	14,218	608	3.45	490
Maryland---------	595	51,210.1	14,560	595	51,210.1	14,560	3.72	541	---	---	---	---	---	---
Massachusetts----	306	18,473.0	15,236	306	18,473.0	15,236	3.71	566	19	1,126.9	14,913	595	3.27	488
Michigan---------	1,441	114,229.0	15,515	1,441	114,229.0	15,515	3.67	569	---	---	---	---	---	---
Minnesota--------	4,196	216,327.1	14,804	4,196	216,327.1	14,804	3.66	542	---	---	---	---	---	---
Mississippi------	261	25,353.0	12,679	261	25,353.0	12,679	3.65	462	---	---	---	---	---	---
Missouri---------	749	50,431.5	14,086	749	50,431.5	14,086	3.63	511	---	---	---	---	---	---
Montana----------	98	8,134.1	14,213	98	8,134.1	14,213	3.57	508	---	---	---	---	---	---
Nebraska---------	438	29,748.6	13,831	438	29,748.6	13,831	3.66	507	---	---	---	---	---	---
Nevada-----------	33	9,724.4	15,401	33	9,724.4	15,401	3.60	554	---	---	---	---	---	---
New Hampshire----	203	12,625.7	15,258	203	12,625.7	15,258	3.73	569	22	1,400.8	14,336	582	3.32	476
New Jersey-------	186	14,162.9	15,663	186	14,162.9	15,663	3.73	584	5	475.4	15,631	630	3.48	543
New Mexico-------	54	28,909.2	16,159	54	28,909.2	16,159	3.64	588	---	---	---	---	---	---
New York---------	2,931	204,816.1	15,798	2,931	204,816.1	15,798	3.67	579	562	37,483.7	15,837	595	3.27	518
North Carolina---	619	66,821.4	14,825	615	66,546.3	14,829	3.61	535	---	---	---	---	---	---
North Dakota-----	129	7,830.2	13,250	129	7,830.2	13,250	3.47	460	---	---	---	---	---	---
Ohio-------------	1,568	97,692.2	14,892	1,568	97,692.2	14,892	3.78	563	---	---	---	---	---	---
Oklahoma---------	264	20,395.5	14,205	264	20,395.5	14,205	3.73	529	6	374.7	12,206	495	3.61	441
Oregon-----------	371	42,915.0	15,207	371	42,915.0	15,207	3.82	581	---	---	---	---	---	---
Pennsylvania-----	3,780	221,366.8	15,379	3,780	221,366.8	15,379	3.73	574	---	---	---	---	---	---
Puerto Rico------	156	28,575.8	8,937	150	27,292.7	8,905	3.14	280	---	---	---	---	---	---
Rhode Island-----	22	1,306.4	14,134	22	1,306.4	14,134	3.73	528	---	---	---	---	---	---
South Carolina---	217	30,038.9	13,325	217	30,038.9	13,325	3.88	517	---	---	---	---	---	---
South Dakota-----	237	14,918.5	13,896	237	14,918.5	13,896	3.62	502	3	201.4	13,001	476	3.21	418
Tennessee--------	638	56,802.9	13,813	638	56,802.9	13,813	3.70	511	---	---	---	---	---	---
Texas------------	545	69,038.6	14,015	543	68,769.1	14,020	3.59	503	---	---	---	---	---	---
Utah-------------	325	37,194.9	15,922	324	37,172.3	15,921	3.45	549	---	---	---	---	---	---
Vermont----------	968	56,116.2	14,743	968	56,116.2	14,743	3.71	547	57	2,617.4	14,439	572	3.31	477
Virginia---------	909	85,503.3	14,988	909	85,503.3	14,988	3.62	542	---	---	---	---	---	---
Washington-------	618	86,347.6	16,229	618	86,347.6	16,229	3.63	589	---	---	---	---	---	---
West Virginia----	168	13,397.2	13,971	168	13,397.2	13,971	3.59	502	1	66.7	10,987	516	3.77	414
Wisconsin--------	5,298	307,331.2	15,295	5,298	307,331.2	15,295	3.77	577	---	---	---	---	---	---
Wyoming----------	28	2,560.0	14,224	28	2,560.0	14,224	3.43	488	---	---	---	---	---	---
United States----	36,690	3,047,260.0	15,134	36,671	3,044,386.2	15,137	3.68	558	796	50,235.6	15,446	588	3.28	507

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[1] Includes Puerto Rico.

Table 2.--National cow-year totals and averages for all official herd records by breed and milk level, 1981

Milk level (lb)	Records with milk			Records with fat				Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Pro-tein	Pro-tein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
					Ayrshire									
Less than 7,000---	3	146.8	6,807	3	146.8	6,807	3.71	253	---	---	---	---	---	---
7,000 - 7,999---	4	222.4	7,647	4	222.4	7,647	3.97	304	---	---	---	---	---	---
8,000 - 8,999---	16	461.2	8,547	16	461.2	8,547	4.00	342	1	53.0	8,665	371	3.50	303
9,000 - 9,999---	31	951.9	9,594	31	951.9	9,594	3.95	379	---	---	---	---	---	---
10,000 - 10,999---	63	2,752.9	10,558	63	2,752.9	10,558	3.92	414	1	26.2	10,198	374	3.19	325
11,000 - 11,999---	91	3,747.4	11,543	91	3,747.4	11,543	3.96	457	4	295.5	11,832	488	3.42	404
12,000 - 12,999---	86	4,092.2	12,465	86	4,092.2	12,465	3.94	491	6	298.2	12,216	493	3.30	403
13,000 - 13,999---	64	2,988.4	13,489	64	2,988.4	13,489	3.94	531	3	94.9	13,218	517	3.30	436
14,000 - 14,999---	43	1,988.2	14,442	43	1,988.2	14,442	3.91	565	5	257.7	14,389	552	3.35	482
15,000 - 15,999---	21	861.7	15,453	21	861.7	15,453	3.84	593	2	25.1	15,418	567	3.23	498
16,000 - 16,999---	3	110.0	16,139	3	110.0	16,139	3.96	640	2	66.2	16,225	628	3.37	546
17,000 - 17,999---	1	20.5	17,265	1	20.5	17,265	3.81	658	1	20.5	17,265	658	3.43	592
18,000 - 18,999---	1	112.6	18,444	1	112.6	18,444	4.13	761	---	---	---	---	---	---
Total or average--	427	18,456.2	12,226	427	18,456.2	12,226	3.93	481	25	1,137	875	511	3.35	431
					Brown Swiss									
Less than 7,000---	1	18.9	6,857	1	18	857	3.84	263	---	---	---	---	---	---
7,000 - 7,999---	8	325.3	7,707	8	325.3	7,707	3.89	300	1	70.0	7,727	302	3.46	267
8,000 - 8,999---	13	684.1	8,364	13	684.1	8,364	4.18	349	1	25.7	8,119	344	3.71	301
9,000 - 9,999---	29	1,536.9	9,562	29	1,536.9	9,562	3.95	378	1	67.8	9,749	370	3.38	329
10,000 - 10,999---	61	2,516.6	10,571	61	2,516.6	10,571	4.01	424	4	183.0	10,855	435	3.40	369
11,000 - 11,999---	99	4,423.0	11,493	99	4,423.0	11,493	4.09	470	9	345.3	11,482	480	3.52	404
12,000 - 12,999---	120	5,176.5	12,510	120	5,176.5	12,510	4.10	513	16	744.8	12,549	516	3.57	448
13,000 - 13,999---	105	5,034.2	13,458	105	5,034.2	13,458	4.11	554	10	400.0	13,501	544	3.47	468
14,000 - 14,999---	64	3,474.5	14,502	64	3,474.5	14,502	4.09	592	7	366.3	14,585	582	3.51	511
15,000 - 15,999---	40	2,389.8	15,526	40	2,389.8	15,526	4.01	623	6	372.9	15,401	621	3.51	540
16,000 - 16,999---	13	611.7	16,468	13	611.7	16,468	4.08	672	---	---	---	---	---	---
17,000 - 17,999---	6	152.7	17,232	6	152.7	17,232	4.08	702	2	11.2	17,581	721	3.62	636
18,000 - 18,999---	2	82.7	18,189	2	82.7	18,189	4.02	731	---	---	---	---	---	---
Total or average--	561	26,426.9	12,665	561	26,426.9	12,665	4.07	516	57	2,587.1	12,907	524	3.51	453
					Guernsey									
Less than 7,000---	10	353.4	6,380	10	353.4	6,380	4.60	293	---	---	---	---	---	---
7,000 - 7,999---	24	1,155.1	7,566	24	1,155.1	7,566	4.72	357	---	---	---	---	---	---
8,000 - 8,999---	64	2,914.7	8,596	64	2,914.7	8,596	4.63	398	1	19.3	8,673	442	3.99	346
9,000 - 9,999---	159	8,263.0	9,569	159	8,263.0	9,569	4.71	450	5	272.9	9,668	463	3.66	354
10,000 - 10,999---	212	11,501.2	10,516	212	11,501.2	10,516	4.65	489	5	146.3	10,399	486	3.64	379
11,000 - 11,999---	241	13,349.4	11,513	241	13,349.4	11,513	4.68	539	8	241.3	11,392	550	3.61	412
12,000 - 12,999---	149	9,886.3	12,454	149	9,886.3	12,454	4.68	583	9	410.5	12,524	600	3.61	452
13,000 - 13,999---	93	5,348.9	13,455	93	5,348.9	13,455	4.67	628	10	270.4	13,378	619	3.55	475
14,000 - 14,999---	24	1,706.3	14,330	24	1,706.3	14,330	4.44	636	1	15.6	14,837	655	3.60	534
15,000 - 15,999---	7	400.5	15,421	7	400.5	15,421	4.63	714	---	---	---	---	---	---
16,000 - 16,999---	2	75.4	16,191	2	75.4	16,191	4.59	743	---	---	---	---	---	---
Total or average--	985	54,954.1	11,222	985	54,954.1	11,222	4.67	523	39	1,376.3	11,673	554	3.61	422
					Holstein									
Less than 7,000---	33	2,659.0	6,350	33	2,659.0	6,350	3.48	221	---	---	---	---	---	---
7,000 - 7,999---	67	7,969.7	7,634	66	7,651.9	7,634	3.28	250	---	---	---	---	---	---
8,000 - 8,999---	158	15,213.0	8,554	157	15,125.9	8,552	3.42	292	---	---	---	---	---	---
9,000 - 9,999---	296	23,862.7	9,527	294	23,466.0	9,526	3.52	335	4	185.6	9,250	345	3.10	287
10,000 - 10,999---	687	49,024.7	10,535	685	48,773.4	10,537	3.61	381	2	79.3	10,719	392	3.16	338
11,000 - 11,999---	1,352	100,699.2	11,569	1,351	100,342.3	11,570	3.60	417	5	313.2	11,656	412	3.20	373
12,000 - 12,999---	2,595	190,759.4	12,554	2,591	190,134.0	12,554	3.66	459	10	715.5	12,701	464	3.27	415
13,000 - 13,999---	4,001	297,977.7	13,542	3,999	297,656.2	13,542	3.64	493	30	1,769.0	13,618	501	3.22	439
14,000 - 14,999---	5,275	416,998.1	14,524	5,273	416,836.0	14,524	3.65	530	65	4,335.1	14,508	532	3.21	465
15,000 - 15,999---	5,791	488,741.6	15,506	5,789	488,584.2	15,506	3.65	566	110	7,190.7	15,475	565	3.20	495
16,000 - 16,999---	5,266	472,653.7	16,471	5,266	472,653.7	16,471	3.64	599	111	7,508.5	16,472	602	3.21	529
17,000 - 17,999---	3,598	355,585.9	17,461	3,597	355,563.3	17,461	3.63	634	106	7,281.8	17,451	633	3.19	557
18,000 - 18,999---	1,952	203,204.6	18,455	1,952	203,204.6	18,455	3.61	667	63	4,801.1	18,470	666	3.20	591
19,000 - 19,999---	868	94,109.2	19,434	868	94,109.2	19,434	3.59	697	33	2,653.0	19,485	703	3.20	623
20,000 - 20,999---	319	44,028.1	20,436	319	44,028.1	20,436	3.58	732	12	911.0	20,498	725	3.14	643
21,000 - 21,999---	96	12,220.0	21,387	96	12,220.0	21,387	3.56	761	3	622.6	21,043	753	3.17	667
22,000 - 22,999---	33	4,089.9	22,305	33	4,089.9	22,305	3.50	781	---	---	---	---	---	---
23,000 - 23,999---	13	1,160.6	23,433	13	1,160.6	23,433	3.63	850	---	---	---	---	---	---
24,000 - 24,999---	2	126.0	24,635	2	126.0	24,635	3.36	828	---	---	---	---	---	---
25,000 or more----	2	302.9	26,120	2	302.9	26,120	3.63	948	---	---	---	---	---	---
Total or average--	32,404	2,781,386.7	15,476	32,386	2,778,687.9	15,480	3.63	562	554	38,366.4	16,589	603	3.20	531
					Jersey									
Less than 7,000---	37	1,826.8	6,274	37	1,826.8	6,274	4.72	296	---	---	---	---	---	---
7,000 - 7,999---	68	4,538.5	7,571	68	4,538.5	7,571	4.89	371	---	---	---	---	---	---
8,000 - 8,999---	180	10,718.8	8,579	180	10,718.8	8,579	4.81	413	11	488.0	8,570	435	3.90	334
9,000 - 9,999---	295	20,224.0	9,506	295	20,224.0	9,506	4.84	460	19	1,302.5	9,517	487	3.91	372
10,000 - 10,999---	348	23,509.8	10,520	348	23,509.8	10,520	4.86	511	21	921.9	10,540	519	3.84	405
11,000 - 11,999---	283	23,348.2	11,472	283	23,348.2	11,472	4.89	561	28	2,202.9	11,463	573	3.82	437
12,000 - 12,999---	169	14,564.7	12,454	169	14,564.7	12,454	4.92	612	23	1,020.8	12,470	604	3.84	479
13,000 - 13,999---	63	4,492.4	13,477	63	4,492.4	13,477	4.84	652	5	358.3	13,395	637	3.79	508
14,000 - 14,999---	21	1,736.5	14,445	21	1,736.5	14,445	4.80	694	2	52.6	14,261	724	3.78	539
15,000 - 15,999---	3	202.7	15,568	3	202.7	15,568	4.81	749	---	---	---	---	---	---
16,000 - 16,999---	1	30.8	16,155	1	30.8	16,155	5.01	810	1	30.8	16,155	810	3.68	594
Total or average--	1,468	105,193.1	10,608	1,468	105,193.1	10,608	4.87	516	110	6,377.8	11,026	548	3.84	424

Table 2.--National cow-year totals and averages for all official herd records by breed and milk level, 1981--Continued

Milk level (lb)	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
					Milking Shorthorn									
Less than 7,000---	3	92.0	6,559	3	92.0	6,559	3.88	254	---	---	---	---	---	---
7,000 - 7,999---	2	48.5	7,219	2	48.5	7,219	3.81	275	---	---	---	---	---	---
8,000 - 8,999---	6	208.0	8,482	6	208.0	8,482	3.65	310	---	---	---	---	---	---
9,000 - 9,999---	15	499.5	9,653	15	499.5	9,653	3.59	346	---	---	---	---	---	---
10,000 - 10,999---	17	596.6	10,583	17	596.6	10,583	3.56	376	---	---	---	---	---	---
11,000 - 11,999---	15	556.7	11,382	15	556.7	11,382	3.61	410	1	10.2	11,415	388	3.11	355
12,000 - 12,999---	16	615.7	12,547	16	615.7	12,547	3.59	450	1	6.3	12,070	433	3.16	381
13,000 - 13,999---	5	233.2	13,389	5	233.2	13,389	3.71	496	---	---	---	---	---	---
14,000 - 14,999---	4	146.2	14,174	4	146.2	14,174	3.83	543	---	---	---	---	---	---
16,000 - 16,999---	1	57.4	16,998	1	57.4	16,998	3.85	655	---	---	---	---	---	---
Total or average--	84	3,053.8	11,162	84	3,053.8	11,162	3.63	405	2	16.5	11,665	405	3.13	365
					Red and White									
8,000 - 8,999---	1	179.3	8,251	1	179.3	8,251	3.05	252	---	---	---	---	---	---
13,000 - 13,999---	5	214.5	13,749	5	214.5	13,749	3.71	510	---	---	---	---	---	---
14,000 - 14,999---	6	416.8	14,801	6	416.8	14,801	3.75	555	---	---	---	---	---	---
15,000 - 15,999---	6	258.2	15,575	6	258.2	15,575	3.60	560	1	32.5	15,527	545	3.12	485
16,000 - 16,999---	4	180.9	16,333	4	180.9	16,333	3.73	608	2	83.3	16,247	606	3.22	523
17,000 - 17,999---	1	115.9	17,336	1	115.9	17,336	3.33	578	---	---	---	---	---	---
18,000 - 18,999---	1	153.0	18,530	1	153.0	18,530	3.57	662	---	---	---	---	---	---
19,000 - 19,999---	1	70.9	19,864	1	70.9	19,864	3.66	727	---	---	---	---	---	---
Total or average--	25	1,589.5	14,990	25	1,589.5	14,990	3.61	541	3	115.8	16,045	589	3.19	512
					Mixed and other breeds									
Less than 7,000---	7	362.5	6,636	7	362.5	6,636	3.58	237	---	---	---	---	---	---
7,000 - 7,999---	15	1,082.0	7,607	15	1,082.0	7,607	4.08	310	---	---	---	---	---	---
8,000 - 8,999---	30	1,769.1	8,589	30	1,769.1	8,589	4.06	348	---	---	---	---	---	---
9,000 - 9,999---	59	3,482.6	9,547	59	3,482.6	9,547	4.17	398	---	---	---	---	---	---
10,000 - 10,999---	94	5,866.4	10,567	94	5,866.4	10,567	4.05	427	2	88.6	10,410	455	3.51	365
11,000 - 11,999---	105	8,252.9	11,462	105	8,252.9	11,462	3.96	454	1	96.7	11,999	483	3.63	436
12,000 - 12,999---	118	9,002.6	12,505	118	9,002.6	12,505	3.85	481	1	41.4	12,797	498	3.34	428
13,000 - 13,999---	103	8,239.8	13,506	102	8,064.8	13,517	3.86	522	---	---	---	---	---	---
14,000 - 14,999---	103	7,215.3	14,521	103	7,215.3	14,521	3.79	550	2	84.7	14,168	540	3.32	470
15,000 - 15,999---	56	6,101.6	15,391	56	6,101.6	15,391	3.66	563	---	---	---	---	---	---
16,000 - 16,999---	27	3,141.5	16,601	27	3,141.5	16,601	3.64	604	---	---	---	---	---	---
17,000 - 17,999---	11	1,092.6	17,467	11	1,092.6	17,467	3.79	662	---	---	---	---	---	---
18,000 - 18,999---	4	159.2	18,787	4	159.2	18,787	3.66	688	---	---	---	---	---	---
19,000 - 19,999---	3	192.0	19,262	3	192.0	19,262	3.57	687	---	---	---	---	---	---
20,000 - 20,999---	1	239.5	20,127	1	239.5	20,127	3.40	685	---	---	---	---	---	---
Total or average--	736	56,199.5	12,829	735	56,024.5	12,828	3.85	493	6	311.4	12,243	491	3.46	424

Table 3.--National cow-year totals and averages for all official herd records by breed and herd size, 1981

Herd size (number)	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
						Ayrshire								
5 - 24.9---	118	1,722.6	12,067	118	1,722.6	12,067	3.94	475	7	105.1	14,820	568	3.29	488
25 - 49.9---	173	6,442.0	12,128	173	6,442.0	12,128	3.91	474	6	227.3	12,471	489	3.29	410
50 - 74.9---	96	5,821.4	12,158	96	5,821.4	12,158	3.92	476	10	598.9	13,042	518	3.35	437
75 - 99.9---	20	1,685.7	12,389	20	1,685.7	12,389	3.93	487	1	98.4	11,877	466	3.51	417
100 - 149.9---	14	1,578.3	12,942	14	1,578.3	12,942	4.03	521	1	107.6	11,815	500	3.40	402
150 - 199.9---	2	312.1	12,402	2	312.1	12,402	4.02	498	---	---	---	---	---	---
200 - 299.9---	4	894.1	12,045	4	894.1	12,045	3.97	478	---	---	---	---	---	---
Total or average--	427	18,456.2	12,226	427	18,456.2	12,226	3.93	481	25	1,137.3	12,875	511	3.35	431
						Brown Swiss								
5 - 24.9---	127	1,932.1	12,583	127	1,932.1	12,583	4.04	508	10	119.9	13,172	544	3.51	462
25 - 49.9---	238	8,743.5	12,457	238	8,743.5	12,457	4.08	508	22	833.8	12,772	526	3.52	450
50 - 74.9---	124	7,351.0	12,533	124	7,351.0	12,533	4.09	513	19	1,123.4	12,831	515	3.52	452
75 - 99.9---	33	2,789.3	12,938	33	2,789.3	12,938	4.05	524	6	510.0	13,234	536	3.47	459
100 - 149.9---	29	3,445.5	13,195	29	3,445.5	13,195	4.11	543	---	---	---	---	---	---
150 - 199.9---	6	1,077.8	12,520	6	1,077.8	12,520	3.93	492	---	---	---	---	---	---
200 - 299.9---	4	1,087.7	13,140	4	1,087.7	13,140	4.04	531	---	---	---	---	---	---
Total or average--	561	26,426.9	12,665	561	26,426.9	12,665	4.07	516	57	2,587.1	12,907	524	3.51	453
						Guernsey								
5 - 24.9---	163	2,576.3	10,863	163	2,576.3	10,863	4.65	505	17	233.0	11,972	575	3.60	431
25 - 49.9---	398	15,146.5	10,876	398	15,146.5	10,876	4.67	508	14	510.6	11,903	561	3.59	427
50 - 74.9---	240	14,432.6	11,251	240	14,432.6	11,251	4.67	525	3	168.8	9,816	468	3.64	358
75 - 99.9---	94	7,942.6	11,428	94	7,942.6	11,428	4.68	535	3	235.4	12,482	583	3.62	452
100 - 149.9---	52	6,265.8	11,361	52	6,265.8	11,361	4.69	533	2	228.5	11,395	550	3.65	416
150 - 199.9---	21	3,535.2	11,259	21	3,535.2	11,259	4.76	535	---	---	---	---	---	---
200 - 299.9---	12	2,891.5	12,125	12	2,891.5	12,125	4.42	536	---	---	---	---	---	---
300 - 399.9---	3	934.9	10,861	3	934.9	10,861	4.70	510	---	---	---	---	---	---
400 - 499.9---	1	472.7	11,472	1	472.7	11,472	4.61	529	---	---	---	---	---	---
750 - 999.9---	1	756.1	12,170	1	756.1	12,170	4.79	583	---	---	---	---	---	---
Total or average--	985	54,954.1	11,222	985	54,954.1	11,222	4.67	523	39	1,376.3	11,673	554	3.61	422

Table 3.--National cow-year totals and averages for all official herd records by breed and herd size, 1981--Continued

	Records with milk			Records with fat					Records with protein					
Herd size (number)	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Pro-tein	Pro-tein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
Holstein														
5 - 24.9---	1,181	22,795.5	14,792	1,180	22,772.9	14,790	3.65	539	20	360.1	15,828	586	3.19	505
25 - 49.9---	10,623	416,264.6	15,143	10,621	416,191.2	15,143	3.66	553	186	7,337.5	16,220	589	3.17	514
50 - 74.9---	9,387	572,486.4	15,253	9,386	572,411.5	15,254	3.65	557	186	11,360.7	16,482	599	3.20	527
75 - 99.9---	4,549	391,097.4	15,199	4,548	391,010.3	15,200	3.64	553	73	6,324.6	16,674	608	3.21	535
100 - 149.9---	3,629	434,498.6	15,155	3,623	433,731.7	15,159	3.62	549	61	7,134.2	16,447	599	3.23	532
150 - 199.9---	1,213	207,507.5	15,234	1,210	206,968.1	15,243	3.62	551	16	2,713.7	17,216	629	3.19	550
200 - 299.9---	937	226,422.7	15,492	935	225,962.9	15,500	3.60	558	10	2,325.9	17,390	627	3.19	555
300 - 399.9---	340	116,593.6	15,945	338	115,918.9	15,982	3.62	578	1	302.1	12,757	456	3.29	420
400 - 499.9---	181	80,830.9	16,151	181	80,830.9	16,151	3.61	582	---	---	---	---	---	---
500 - 749.9---	214	129,595.9	16,873	214	129,595.9	16,873	3.63	613	1	507.6	21,031	747	3.16	664
750 - 999.9---	61	52,766.5	17,309	61	52,766.5	17,309	3.63	628	---	---	---	---	---	---
1,000 - 1,249.9---	46	51,007.0	17,418	46	51,007.0	17,418	3.64	635	---	---	---	---	---	---
1,250 - 1,499.9---	22	30,999.1	17,421	22	30,999.1	17,421	3.64	634	---	---	---	---	---	---
1,500 - 1,999.9---	8	14,104.6	16,614	8	14,104.6	16,614	3.53	587	---	---	---	---	---	---
2,000 - 2,999.9---	10	23,843.3	16,537	10	23,843.3	16,537	3.57	590	---	---	---	---	---	---
3,000 or more-----	3	10,572.2	14,402	3	10,572.2	14,402	3.69	531	---	---	---	---	---	---
Total or average--	32,404	2,781,386.7	15,476	32,386	2,778,687.9	15,480	3.63	562	554	38,366.4	16,589	603	3.20	531
Jersey														
5 - 24.9---	217	3,392.0	10,257	217	3,392.0	10,257	4.80	492	18	281.2	10,473	514	3.80	398
25 - 49.9---	486	18,068.3	10,405	486	18,068.3	10,405	4.84	504	44	1,624.9	11,162	553	3.81	425
50 - 74.9---	310	19,013.7	10,371	310	19,013.7	10,371	4.86	504	30	1,869.0	11,068	543	3.85	426
75 - 99.9---	180	15,539.4	10,344	180	15,539.4	10,344	4.82	498	7	617.6	10,896	542	3.89	424
100 - 149.9---	157	18,906.5	10,722	157	18,906.5	10,722	4.90	525	6	766.1	10,911	543	3.86	421
150 - 199.9---	53	9,114.3	10,674	53	9,114.3	10,674	4.91	524	2	383.5	12,591	631	3.94	496
200 - 299.9---	36	8,597.2	10,979	36	8,597.2	10,979	4.88	535	2	446.1	11,121	557	3.71	413
300 - 399.9---	17	5,871.2	10,827	17	5,871.2	10,827	4.86	526	1	389.4	9,443	502	3.96	374
400 - 499.9---	6	2,696.7	11,133	6	2,696.7	11,133	4.84	539	---	---	---	---	---	---
500 - 749.9---	5	2,983.3	11,944	5	2,983.3	11,944	4.99	596	---	---	---	---	---	---
1,000 - 1,249.9---	1	1,010.6	11,401	1	1,010.6	11,401	4.91	560	---	---	---	---	---	---
Total or average--	1,468	105,193.1	10,608	1,468	105,193.1	10,608	4.87	516	110	6,377.8	11,026	548	3.84	424
Milking Shorthorn														
5 - 24.9---	35	573.2	10,846	35	573.2	10,846	3.61	391	2	16.5	11,665	405	3.13	365
25 - 49.9---	32	1,227.7	10,866	32	1,227.7	10,866	3.62	393	---	---	---	---	---	---
50 - 74.9---	11	677.3	11,622	11	677.3	11,622	3.66	425	---	---	---	---	---	---
75 - 99.9---	4	319.3	10,987	4	319.3	10,987	3.69	406	---	---	---	---	---	---
100 - 149.9---	2	256.3	12,282	2	256.3	12,282	3.58	440	---	---	---	---	---	---
Total or average--	84	3,053.8	11,162	84	3,053.8	11,162	3.63	405	2	16.5	11,665	405	3.13	365
Red and White														
5 - 24.9---	1	7.2	13,541	1	7.2	13,541	3.58	485	---	---	---	---	---	---
25 - 49.9---	11	429.0	15,152	11	429.0	15,152	3.64	552	3	115.8	16,045	589	3.19	512
50 - 74.9---	7	446.5	15,819	7	446.5	15,819	3.71	587	---	---	---	---	---	---
75 - 99.9---	3	258.6	14,855	3	258.6	14,855	3.77	559	---	---	---	---	---	---
100 - 149.9---	1	115.9	17,336	1	115.9	17,336	3.33	578	---	---	---	---	---	---
150 - 199.9---	2	332.3	12,984	2	332.3	12,984	3.40	441	---	---	---	---	---	---
Total or average--	25	1,589.5	14,990	25	1,589.5	14,990	3.61	541	3	115.8	16,045	589	3.19	512
Mixed and other breeds														
5 - 24.9---	85	1,304.9	12,617	85	1,304.9	12,617	3.92	494	3	102.4	12,291	481	3.40	417
25 - 49.9---	253	9,530.3	12,209	253	9,530.3	12,209	3.93	479	2	112.3	12,410	511	3.38	420
50 - 74.9---	167	10,220.6	12,518	167	10,220.6	12,518	3.89	487	1	96.7	11,999	483	3.63	436
75 - 99.9---	89	7,819.4	12,709	89	7,819.4	12,709	3.89	494	---	---	---	---	---	---
100 - 149.9---	77	9,096.7	12,745	77	9,096.7	12,745	3.80	485	---	---	---	---	---	---
150 - 199.9---	36	6,201.2	12,717	35	6,026.2	12,708	3.83	487	---	---	---	---	---	---
200 - 299.9---	11	2,605.4	13,070	11	2,605.4	13,070	3.87	505	---	---	---	---	---	---
300 - 399.9---	9	3,195.0	13,174	9	3,195.0	13,174	3.91	515	---	---	---	---	---	---
400 - 499.9---	3	1,230.3	12,764	3	1,230.3	12,764	3.97	507	---	---	---	---	---	---
500 - 749.9---	2	1,043.0	13,642	2	1,043.0	13,642	3.79	517	---	---	---	---	---	---
750 - 999.9---	2	1,788.6	13,862	2	1,788.6	13,862	3.64	504	---	---	---	---	---	---
1,000 - 1,249.9---	2	2,164.2	16,247	2	2,164.2	16,247	3.48	565	---	---	---	---	---	---
Total or average--	736	56,199.5	12,829	735	56,024.5	12,828	3.85	493	6	311.4	12,243	491	3.46	424

Table 4.--State and national cow-year totals and averages for all nonofficial herd records for milk, fat, and protein, 1981

State[1]	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
Alabama----------	7	846.7	13,108	6	577.6	13,154	3.66	481	---	---	---	---	---	---
Alaska-----------	2	155.8	15,969	2	155.8	15,969	3.39	542	---	---	---	---	---	---
Arizona----------	4	812.6	9,241	4	812.6	9,241	3.50	324	---	---	---	---	---	---
Arkansas---------	41	4,117.1	14,068	41	4,117.1	14,068	3.56	501	---	---	---	---	---	---
California-------	97	38,565.6	15,380	97	38,565.6	15,380	3.68	565	---	---	---	---	---	---
Colorado---------	19	2,715.9	14,117	19	2,715.9	14,117	3.68	519	---	---	---	---	---	---
Connecticut------	36	2,769.7	14,073	36	2,769.7	14,073	3.61	508	---	---	---	---	---	---
Delaware---------	2	339.2	15,008	2	339.2	15,008	3.40	511	---	---	---	---	---	---
Florida----------	93	35,433.1	12,564	1	62.8	10,170	3.31	337	---	---	---	---	---	---
Georgia----------	106	17,960.6	12,712	7	722.5	13,250	3.56	472	---	---	---	---	---	---
Hawaii-----------	6	3,679.9	13,864	6	3,679.9	13,864	3.38	468	---	---	---	---	---	---
Idaho------------	38	5,538.9	15,703	38	5,538.9	15,703	3.52	552	---	---	---	---	---	---
Illinois---------	236	11,884.6	13,508	236	11,884.6	13,508	3.78	511	1	38.9	14,950	616	3.05	456
Indiana----------	209	11,168.2	13,816	207	10,786.3	13,960	3.70	517	---	---	---	---	---	---
Iowa-------------	1,067	49,853.1	12,910	1,066	49,823.4	12,910	3.73	481	7	251.9	10,439	437	3.29	344
Kansas-----------	116	5,989.2	13,410	116	5,989.2	13,410	3.55	476	---	---	---	---	---	---
Kentucky---------	56	4,817.6	13,094	47	4,001.9	13,173	3.66	482	---	---	---	---	---	---
Louisiana--------	8	1,859.4	13,725	3	218.8	12,524	3.46	433	---	---	---	---	---	---
Maine------------	41	3,669.4	14,574	41	3,669.4	14,574	3.57	520	---	---	---	---	---	---
Maryland---------	48	3,073.4	13,903	48	3,073.4	13,903	3.76	522	---	---	---	---	---	---
Massachusetts----	20	1,065.1	12,607	20	1,065.1	12,607	3.67	463	---	---	---	---	---	---
Michigan---------	723	44,826.0	14,472	723	44,826.0	14,472	3.66	529	---	---	---	---	---	---
Minnesota--------	2,108	88,928.0	13,810	2,106	88,860.5	13,810	3.71	512	---	---	---	---	---	---
Mississippi------	5	384.9	11,927	5	384.9	11,927	3.61	430	---	---	---	---	---	---
Missouri---------	178	10,279.1	13,089	178	10,279.1	13,089	3.62	473	---	---	---	---	---	---
Montana----------	5	1,135.0	12,437	5	1,135.0	12,437	3.61	448	---	---	---	---	---	---
Nebraska---------	61	4,763.1	13,254	61	4,763.1	13,254	3.62	480	---	---	---	---	---	---
Nevada-----------	6	489.7	13,767	6	489.7	13,767	3.72	512	---	---	---	---	---	---
New Hampshire----	28	1,912.4	13,878	28	1,912.4	13,878	3.62	502	3	91.0	15,263	542	3.14	479
New Jersey-------	33	2,145.2	13,546	33	2,145.2	13,546	3.70	501	---	---	---	---	---	---
New Mexico-------	5	932.9	12,340	5	932.9	12,340	3.67	453	---	---	---	---	---	---
New York---------	3,000	182,995.1	14,745	2,991	182,542.4	14,745	3.58	527	168	9,143.7	14,805	536	3.15	467
North Carolina---	44	4,087.3	14,483	17	994.4	13,922	3.74	521	---	---	---	---	---	---
North Dakota-----	31	2,541.8	12,698	31	2,541.8	12,698	3.59	456	---	---	---	---	---	---
Ohio-------------	553	27,937.4	14,179	553	27,937.4	14,179	3.72	528	---	---	---	---	---	---
Oklahoma---------	50	4,241.7	12,762	50	4,241.7	12,762	3.63	463	---	---	---	---	---	---
Oregon-----------	35	3,172.8	14,917	35	3,172.8	14,917	3.74	559	---	---	---	---	---	---
Pennsylvania-----	1,932	94,511.0	14,277	1,932	94,511.0	14,277	3.68	526	---	---	---	---	---	---
South Carolina---	13	1,222.9	12,425	2	108.3	7,798	3.74	292	---	---	---	---	---	---
South Dakota-----	302	16,203.7	13,162	302	16,203.7	13,162	3.64	479	---	---	---	---	---	---
Tennessee--------	1	169.1	13,821	1	169.1	13,821	4.15	574	---	---	---	---	---	---
Texas------------	38	6,051.5	13,495	24	3,637.5	13,506	3.49	471	---	---	---	---	---	---
Utah-------------	16	2,177.0	14,532	16	2,177.0	14,532	3.64	529	---	---	---	---	---	---
Vermont----------	256	14,249.2	13,601	256	14,249.2	13,601	3.65	497	8	353.4	12,533	486	3.20	401
Virgin Islands---	3	315.7	8,639	0	---	---	---	---	---	---	---	---	---	---
Virginia---------	33	1,962.4	14,632	31	1,858.1	14,763	3.57	527	---	---	---	---	---	---
Washington-------	75	11,400.2	15,317	75	11,400.2	15,317	3.56	546	---	---	---	---	---	---
West Virginia----	7	245.2	12,630	6	140.8	14,089	3.69	521	---	---	---	---	---	---
Wisconsin--------	9,548	434,849.0	14,144	9,520	433,103.4	14,143	3.88	548	---	---	---	---	---	---
Wyoming----------	2	130.2	11,739	2	130.2	11,739	3.81	447	---	---	---	---	---	---
United States----	21,343	1,170,575.0	14,101	21,037	1,105,417.9	14,177	3.74	530	187	9,878.9	14,618	532	3.15	461

[1] Includes Virgin Islands.

Table 5.--National cow-year totals and averages for all nonofficial herd records by breed and milk level, 1981

Milk level (lb)	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
Ayrshire														
Less than 7,000---	1	58.0	6,867	1	58.0	6,867	4.15	285	1	58.0	6,867	285	3.25	223
7,000 - 7,999---	1	17.1	7,769	1	17.1	7,769	3.72	289	---	---	---	---	---	---
8,000 - 8,999---	8	293.3	8,594	8	293.3	8,594	3.95	339	---	---	---	---	---	---
9,000 - 9,999---	13	515.5	9,558	13	515.5	9,558	3.91	373	---	---	---	---	---	---
10,000 - 10,999---	14	493.6	10,554	14	493.6	10,554	3.90	411	---	---	---	---	---	---
11,000 - 11,999---	19	677.8	11,396	19	677.8	11,396	4.00	456	2	65.2	11,289	433	3.24	366
12,000 - 12,999---	15	394.8	12,438	15	394.8	12,438	3.84	477	2	100.1	12,509	465	3.24	406
13,000 - 13,999---	10	390.4	13,421	10	390.4	13,421	3.71	498	1	18.2	13,761	498	3.21	441
14,000 - 14,999---	4	131.0	14,434	4	131.0	14,434	4.14	597	---	---	---	---	---	---
15,000 - 15,999---	2	26.6	15,174	2	26.6	15,174	3.81	579	---	---	---	---	---	---
17,000 - 17,999---	2	71.5	17,044	2	71.5	17,044	3.58	610	---	---	---	---	---	---
Total or average--	89	3,069.6	11,264	89	3,069.6	11,264	3.89	438	6	241.5	10,919	416	3.24	354
Brown Swiss														
Less than 7,000---	3	109.9	5,668	3	109.9	5,668	3.71	210	---	---	---	---	---	---
7,000 - 7,999---	1	29.3	7,580	1	29.3	7,580	4.41	334	---	---	---	---	---	---
8,000 - 8,999---	5	142.0	8,690	5	142.0	8,690	4.06	353	---	---	---	---	---	---
9,000 - 9,999---	17	497.3	9,432	17	497.3	9,432	4.07	384	---	---	---	---	---	---
10,000 - 10,999---	21	624.3	10,526	21	624.3	10,526	4.04	425	1	12.0	10,441	410	3.31	346
11,000 - 11,999---	31	904.8	11,641	31	904.8	11,641	4.09	477	2	34.7	11,884	452	3.44	409
12,000 - 12,999---	25	905.5	12,435	25	905.5	12,435	4.09	508	---	---	---	---	---	---
13,000 - 13,999---	16	662.7	13,416	16	662.7	13,416	3.97	533	---	---	---	---	---	---
14,000 - 14,999---	5	144.2	14,320	5	144.2	14,320	3.95	566	---	---	---	---	---	---
15,000 - 15,999---	4	136.7	15,439	4	136.7	15,439	3.90	602	---	---	---	---	---	---
16,000 - 16,999---	3	124.7	16,162	3	124.7	16,162	3.79	612	---	---	---	---	---	---
Total or average--	131	4,281.4	11,729	131	4,281.4	11,729	4.03	473	3	46.7	11,513	442	3.41	393
Guernsey														
Less than 7,000---	8	272.3	6,517	8	272.3	6,517	4.78	311	---	---	---	---	---	---
7,000 - 7,999---	20	664.4	7,511	20	664.4	7,511	4.74	356	---	---	---	---	---	---
8,000 - 8,999---	36	1,343.4	8,607	36	1,343.4	8,607	4.68	403	---	---	---	---	---	---
9,000 - 9,999---	87	2,883.1	9,504	87	2,883.1	9,504	4.75	451	---	---	---	---	---	---
10,000 - 10,999---	98	3,452.3	10,465	98	3,452.3	10,465	4.69	491	1	14.7	10,957	499	3.50	384
11,000 - 11,999---	96	3,412.9	11,481	96	3,412.9	11,481	4.55	522	3	99.7	11,620	536	3.51	407
12,000 - 12,999---	40	1,449.2	12,405	40	1,449.2	12,405	4.48	555	2	81.5	12,283	578	3.52	432
13,000 - 13,999---	25	1,122.0	13,548	25	1,122.0	13,548	4.18	567	---	---	---	---	---	---
14,000 - 14,999---	3	64.5	14,132	3	64.5	14,132	4.66	658	---	---	---	---	---	---
15,000 - 15,999---	3	215.9	15,458	3	215.9	15,458	3.63	561	---	---	---	---	---	---
16,000 - 16,999---	2	136.4	16,079	2	136.4	16,079	3.76	604	---	---	---	---	---	---
Total or average--	418	15,016.4	10,699	418	15,016.4	10,699	4.56	488	6	195.9	11,846	551	3.51	416
Holstein														
Less than 7,000---	28	1,329.3	6,421	28	1,329.3	6,421	3.67	236	---	---	---	---	---	---
7,000 - 7,999---	59	2,370.7	7,677	59	2,370.7	7,677	3.72	286	---	---	---	---	---	---
8,000 - 8,999---	140	6,052.5	8,571	135	5,489.0	8,573	3.78	324	---	---	---	---	---	---
9,000 - 9,999---	306	15,480.4	9,542	287	12,151.4	9,562	3.76	359	2	88.6	9,962	345	3.03	301
10,000 - 10,999---	779	42,513.5	10,561	752	34,747.2	10,558	3.77	398	4	159.4	10,392	419	3.20	333
11,000 - 11,999---	1,583	82,724.3	11,566	1,536	72,097.1	11,571	3.77	437	3	173.4	11,735	414	3.06	359
12,000 - 12,999---	2,708	144,144.7	12,538	2,654	133,575.9	12,539	3.77	472	13	652.4	12,507	455	3.15	394
13,000 - 13,999---	3,524	194,684.9	13,524	3,469	182,026.7	13,526	3.75	508	26	1,250.3	13,466	482	3.12	420
14,000 - 14,999---	3,838	214,077.1	14,486	3,787	203,902.2	14,490	3.73	540	30	1,816.1	14,492	518	3.13	453
15,000 - 15,999---	3,339	194,244.4	15,468	3,320	189,339.2	15,468	3.70	573	26	1,574.7	15,506	551	3.11	482
16,000 - 16,999---	2,106	120,383.5	16,448	2,092	118,863.9	16,449	3.67	604	23	1,523.7	16,337	577	3.12	510
17,000 - 17,999---	1,045	67,468.7	17,447	1,041	66,541.6	17,447	3.63	633	16	959.0	17,402	620	3.12	543
18,000 - 18,999---	360	21,063.0	18,410	359	21,005.6	18,409	3.63	667	9	425.9	18,503	658	3.14	582
19,000 - 19,999---	109	5,889.0	19,399	108	5,739.2	19,404	3.59	696	2	185.7	19,198	636	3.14	603
20,000 - 20,999---	28	1,840.5	20,466	28	1,840.5	20,466	3.52	721	---	---	---	---	---	---
21,000 - 21,999---	11	523.5	21,385	11	523.5	21,385	3.50	748	---	---	---	---	---	---
22,000 - 22,999---	2	59.5	22,572	2	59.5	22,572	3.80	859	---	---	---	---	---	---
Total or average--	19,965	1,114,850.1	14,251	19,668	1,051,603.0	14,336	3.72	533	154	8,809.2	15,136	540	3.12	473
Jersey														
Less than 7,000---	14	437.0	5,878	14	437.0	5,878	4.65	273	---	---	---	---	---	---
7,000 - 7,999---	33	1,528.6	7,596	32	1,385.5	7,624	5.07	387	---	---	---	---	---	---
8,000 - 8,999---	87	3,232.6	8,550	86	3,113.5	8,562	4.79	410	6	176.2	8,426	413	3.70	312
9,000 - 9,999---	77	3,434.2	9,503	76	3,280.5	9,503	4.91	467	7	269.4	9,496	463	3.76	357
10,000 - 10,999---	71	2,763.9	10,433	71	2,763.9	10,433	4.86	507	2	56.1	10,106	494	3.76	380
11,000 - 11,999---	36	1,569.4	11,558	36	1,569.4	11,558	4.76	550	3	83.9	11,539	542	3.69	426
12,000 - 12,999---	14	699.4	12,413	14	699.4	12,413	4.60	570	---	---	---	---	---	---
13,000 - 13,999---	3	251.9	13,723	3	251.9	13,723	4.17	572	---	---	---	---	---	---
14,000 - 14,999---	3	167.0	14,613	3	167.0	14,613	4.42	645	---	---	---	---	---	---
15,000 - 15,999---	2	56.2	15,417	2	56.2	15,417	4.05	625	---	---	---	---	---	---
Total or average--	340	14,140.2	9,680	337	13,724.3	9,719	4.81	467	18	585.6	9,525	462	3.74	356
Milking Shorthorn														
7,000 - 7,999---	1	11.9	7,814	1	11.9	7,814	3.69	288	---	---	---	---	---	---
8,000 - 8,999---	3	84.8	8,536	3	84.8	8,536	3.96	338	---	---	---	---	---	---
9,000 - 9,999---	2	64.8	9,532	2	64.8	9,532	3.83	365	---	---	---	---	---	---
10,000 - 10,999---	2	45.7	10,474	2	45.7	10,474	3.85	403	---	---	---	---	---	---
11,000 - 11,999---	1	6.2	11,862	1	6.2	11,862	3.45	409	---	---	---	---	---	---
13,000 - 13,999---	1	22.4	13,929	1	22.4	13,929	3.69	514	---	---	---	---	---	---
15,000 - 15,999---	1	33.3	15,799	1	33.3	15,799	3.74	591	---	---	---	---	---	---
Total or average--	11	269.1	10,497	11	269.1	10,497	3.82	401	---	---	---	---	---	---

Table 5.--National cow-year totals and averages for all nonofficial herd records by breed and milk level, 1981--Continued

Milk level (lb)	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
						Red and White								
10,000 - 10,999---	2	80.0	10,403	2	80.0	10,403	3.80	395	---	---	---	---	---	---
11,000 - 11,999---	1	29.6	11,844	1	29.6	11,844	3.58	424	---	---	---	---	---	---
12,000 - 12,999---	1	35.0	12,916	1	35.0	12,916	3.76	486	---	---	---	---	---	---
13,000 - 13,999---	1	23.9	13,228	1	23.9	13,228	3.64	482	---	---	---	---	---	---
14,000 - 14,999---	3	126.9	14,263	3	126.9	14,263	3.81	543	---	---	---	---	---	---
15,000 - 15,999---	2	78.9	15,748	2	78.9	15,748	3.71	585	---	---	---	---	---	---
Total or average--	10	374.3	13,368	10	374.3	13,368	3.75	502	---	---	---	---	---	---
						Mixed and other breeds								
Less than 7,000---	4	105.0	6,136	4	105.0	6,136	3.92	241	---	---	---	---	---	---
7,000 - 7,999---	13	434.3	7,641	13	434.3	7,641	4.18	320	---	---	---	---	---	---
8,000 - 8,999---	20	800.3	8,598	19	702.1	8,574	4.00	343	---	---	---	---	---	---
9,000 - 9,999---	44	1,763.7	9,568	43	1,619.1	9,607	3.94	378	---	---	---	---	---	---
10,000 - 10,999---	56	2,239.3	10,548	55	2,133.4	10,565	3.94	416	---	---	---	---	---	---
11,000 - 11,999---	62	2,879.1	11,443	61	2,611.0	11,443	3.98	455	---	---	---	---	---	---
12,000 - 12,999---	64	3,711.6	12,470	63	3,613.7	12,469	3.81	475	---	---	---	---	---	---
13,000 - 13,999---	46	1,699.8	13,559	46	1,699.8	13,559	3.89	527	---	---	---	---	---	---
14,000 - 14,999---	35	3,137.5	14,381	34	2,358.1	14,385	3.53	507	---	---	---	---	---	---
15,000 - 15,999---	11	481.7	15,483	11	481.7	15,483	3.84	595	---	---	---	---	---	---
16,000 - 16,999---	21	1,157.5	16,303	21	1,157.5	16,303	3.74	609	---	---	---	---	---	---
17,000 - 17,999---	2	120.9	17,538	2	120.9	17,538	3.63	637	---	---	---	---	---	---
18,000 - 18,999---	1	43.2	18,065	1	43.2	18,065	3.63	656	---	---	---	---	---	---
Total or average--	379	18,573.9	12,274	373	17,079.8	12,249	3.82	468	---	---	---	---	---	---

Table 6.--National cow-year totals and averages for all nonofficial herd records, by breed and herd size, 1981

	Records with milk			Records with fat					Records with protein					
Herd size (number)	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	Number	Lb	Number	Number	Lb	Pct	Lb	Number	Number	Lb	Lb	Pct	Lb
					Ayrshire									
5 - 24.9---	29	488.6	11,849	29	488.6	11,849	3.89	461	2	42.7	12,303	469	3.22	396
25 - 49.9---	45	1,611.0	11,309	45	1,611.0	11,309	3.89	440	2	78.6	11,988	432	3.21	384
50 - 74.9---	12	707.8	10,895	12	707.8	10,895	3.94	429	2	120.2	9,728	386	3.28	319
75 - 99.9---	3	262.2	10,890	3	262.2	10,890	3.75	409	---	---	---	---	---	---
Total or average--	89	3,069.6	11,264	89	3,069.6	11,264	3.89	438	6	241.5	10,919	416	3.24	354
					Brown Swiss									
5 - 24.9---	45	776.2	10,974	45	776.2	10,974	4.03	442	2	19.9	10,895	427	3.42	373
25 - 49.9---	69	2,420.9	11,965	69	2,420.9	11,965	4.06	486	1	26.8	11,972	452	3.41	408
50 - 74.9---	13	745.8	11,622	13	745.8	11,622	3.98	462	---	---	---	---	---	---
75 - 99.9---	4	338.5	12,003	4	338.5	12,003	3.95	474	---	---	---	---	---	---
Total or average--	131	4,281.4	11,729	131	4,281.4	11,729	4.03	473	3	46.7	11,513	442	3.41	393
					Guernsey									
5 - 24.9---	112	2,133.5	10,312	112	2,133.5	10,312	4.59	473	2	28.9	11,287	522	3.55	401
25 - 49.9---	247	8,762.8	10,669	247	8,762.8	10,669	4.59	489	3	110.6	12,074	555	3.52	425
50 - 74.9---	44	2,586.4	10,407	44	2,586.4	10,407	4.64	483	1	56.4	11,684	558	3.47	406
75 - 99.9---	8	662.7	11,400	8	662.7	11,400	4.38	499	---	---	---	---	---	---
100 - 149.9---	6	700.2	13,017	6	700.2	13,017	4.00	520	---	---	---	---	---	---
150 - 199.9---	1	170.8	9,263	1	170.8	9,263	5.28	489	---	---	---	---	---	---
Total or average--	418	15,016.4	10,699	418	15,016.4	10,699	4.56	488	6	195.9	11,846	551	3.51	416
					Holstein									
5 - 24.9---	1,590	31,469.0	13,618	1,590	31,469.0	13,618	3.73	507	6	119.6	14,467	513	3.09	447
25 - 49.9---	10,572	399,981.2	14,082	10,546	399,029.3	14,083	3.75	528	77	2,986.0	14,704	525	3.12	458
50 - 74.9---	5,058	302,865.1	14,383	5,015	300,180.9	14,390	3.73	537	43	2,603.3	15,317	546	3.11	477
75 - 99.9---	1,394	119,298.8	14,518	1,362	116,429.4	14,561	3.70	539	15	1,276.6	15,041	529	3.15	474
100 - 149.9---	827	98,033.5	14,447	765	90,232.4	14,601	3.67	536	11	1,319.9	15,913	574	3.13	498
150 - 199.9---	227	39,018.8	14,111	190	32,368.3	14,393	3.63	523	---	---	---	---	---	---
200 - 299.9---	133	31,846.9	13,864	92	22,160.3	14,533	3.62	526	2	503.8	15,114	532	3.13	473
300 - 399.9---	49	17,271.1	14,227	36	12,652.3	14,482	3.57	517	---	---	---	---	---	---
400 - 499.9---	49	21,858.7	14,195	34	15,073.5	15,006	3.65	548	---	---	---	---	---	---
500 - 749.9---	36	21,701.2	14,243	20	12,076.0	15,374	3.59	552	---	---	---	---	---	---
750 - 999.9---	19	16,469.3	13,944	9	7,875.0	15,475	3.70	572	---	---	---	---	---	---
1,000 - 1,249.9---	3	3,152.0	15,848	3	3,152.0	15,848	3.51	556	---	---	---	---	---	---
1,250 - 1,499.9---	4	5,379.5	15,813	3	4,066.3	16,253	3.55	577	---	---	---	---	---	---
1,500 - 1,999.9---	4	6,504.8	15,412	3	4,838.1	15,300	3.56	545	---	---	---	---	---	---
Total or average--	19,965	1,114,850.1	14,251	19,668	1,051,603.0	14,336	3.72	533	154	8,809.2	15,136	540	3.12	473
					Jersey									
5 - 24.9---	92	1,544.7	9,471	92	1,544.7	9,471	4.83	457	7	119.8	9,382	466	3.81	357
25 - 49.9---	171	6,136.6	9,509	171	6,136.6	9,509	4.77	453	7	248.9	9,485	461	3.75	356
50 - 74.9---	51	3,008.9	9,562	51	3,008.9	9,562	4.75	454	4	216.9	9,651	462	3.68	355
75 - 99.9---	14	1,172.8	10,304	14	1,172.8	10,304	4.90	505	---	---	---	---	---	---
100 - 149.9---	5	635.3	9,202	3	373.1	10,227	5.29	541	---	---	---	---	---	---
150 - 199.9---	3	515.8	10,331	2	362.1	10,679	4.61	492	---	---	---	---	---	---
200 - 299.9---	3	776.0	11,083	3	776.0	11,083	4.85	538	---	---	---	---	---	---
300 - 399.9---	1	350.1	9,327	1	350.1	9,327	5.25	490	---	---	---	---	---	---
Total or average--	340	14,140.2	9,680	337	13,724.3	9,719	4.81	467	18	585.6	9,525	462	3.74	356
					Milking Shorthorn									
5 - 24.9---	5	70.9	10,926	5	70.9	10,926	3.69	403	---	---	---	---	---	---
25 - 49.9---	6	198.2	10,344	6	198.2	10,344	3.87	400	---	---	---	---	---	---
Total or average--	11	269.1	10,497	11	269.1	10,497	3.82	401	---	---	---	---	---	---
					Red and White									
5 - 24.9---	1	23.9	13,228	1	23.9	13,228	3.64	482	---	---	---	---	---	---
25 - 49.9---	8	298.9	13,269	8	298.9	13,269	3.77	500	---	---	---	---	---	---
50 - 74.9---	1	51.5	14,004	1	51.5	14,004	3.74	523	---	---	---	---	---	---
Total or average--	10	374.3	13,368	10	374.3	13,368	3.75	502	---	---	---	---	---	---
					Mixed and other breeds									
5 - 24.9---	90	1,720.0	11,236	90	1,720.0	11,236	3.94	443	---	---	---	---	---	---
25 - 49.9---	192	6,893.0	12,112	192	6,893.0	12,112	3.91	473	---	---	---	---	---	---
50 - 74.9---	58	3,403.0	12,057	58	3,403.0	12,057	3.86	466	---	---	---	---	---	---
75 - 99.9---	21	1,833.0	12,421	19	1,636.9	12,636	3.88	491	---	---	---	---	---	---
100 - 149.9---	9	1,051.6	10,995	7	801.1	11,436	3.84	439	---	---	---	---	---	---
150 - 199.9---	2	356.1	13,089	2	356.1	13,089	3.73	488	---	---	---	---	---	---
200 - 299.9---	3	822.7	14,099	2	554.6	15,383	3.71	571	---	---	---	---	---	---
400 - 499.9---	1	466.4	12,994	1	466.4	12,994	3.54	460	---	---	---	---	---	---
500 - 749.9---	2	1,248.7	13,035	2	1,248.7	13,035	3.27	426	---	---	---	---	---	---
750 - 999.9---	1	779.4	14,369	0	---	---	---	---	---	---	---	---	---	---
Total or average--	379	18,573.9	12,274	373	17,079.8	12,249	3.82	468	---	---	---	---	---	---

Table 7.--State and national cow-year totals and averages for official and nonofficial herd records with feeding and other information reported, 1981[1]

State[2]	Records with milk					Records with fat												
	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Herds	Cow-years	Milk	Fat	Concentrate	Succulent forage	Dry forage	Pasture days	Cost of concentrate	Feed cost	Feed cost/cwt milk	Value of product	Income over feed cost
	Number	Number	Number	Pct	Lb	Number	Number	Lb	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
								Official										
Alabama--------	190	23,328.3	122.7	85	13,415	190	23,328.3	13,415	498	66	49	20	260	601	870	6.58	1,884	1,015
Arkansas-------	166	10,359.9	62.4	83	12,942	166	10,359.9	12,942	454	60	62	40	239	515	786	6.16	1,751	965
Connecticut----	273	22,160.7	81.1	86	15,644	273	22,160.7	15,644	581	60	215	21	90	576	891	5.75	2,203	1,312
Delaware-------	45	3,970.2	88.2	87	16,089	45	3,970.2	16,089	586	53	189	18	213	447	784	4.89	2,235	1,451
Florida--------	64	18,680.3	291.8	85	13,200	61	18,156.5	13,192	460	89	73	21	278	719	982	7.45	2,114	1,132
Georgia--------	298	35,273.5	118.3	84	13,393	297	35,098.5	13,395	485	70	27	18	210	633	907	6.87	1,928	1,021
Illinois-------	1,139	66,802.9	58.6	86	14,280	1,139	66,802.9	14,280	534	54	125	42	141	352	629	4.45	1,868	1,240
Indiana--------	883	54,605.5	61.8	87	14,618	883	54,605.5	14,618	557	60	76	35	144	444	766	5.33	1,977	1,211
Iowa-----------	1,351	69,874.0	51.7	86	14,181	1,351	69,874.0	14,181	530	55	113	43	125	347	624	4.46	1,829	1,205
Kansas---------	708	48,428.9	68.4	86	14,273	708	48,428.9	14,273	515	66	111	47	115	476	832	5.89	1,858	1,027
Kentucky-------	465	30,025.4	64.5	84	13,041	465	30,025.4	13,041	481	55	51	26	211	441	689	5.36	1,711	1,022
Louisiana------	266	27,260.7	102.4	85	12,395	266	27,260.7	12,395	439	60	13	26	338	532	748	6.09	1,755	1,007
Maine----------	402	21,759.3	54.1	86	15,519	402	21,759.3	15,519	570	61	166	34	119	599	907	5.87	2,217	1,311
Massachusetts--	306	18,473.0	60.3	86	15,236	306	18,473.0	15,236	566	58	176	32	132	559	879	5.83	2,229	1,350
Mississippi----	260	25,295.9	97.3	85	12,692	260	25,295.9	12,692	463	56	33	22	276	493	723	5.75	1,762	1,039
Missouri-------	749	50,431.5	67.3	85	14,086	749	50,431.5	14,086	511	60	92	44	184	487	819	5.87	1,834	1,016
Nebraska-------	438	29,748.6	67.9	85	13,831	438	29,748.6	13,831	507	57	119	46	88	399	709	5.18	1,768	1,059
New Hampshire--	203	12,625.7	62.2	86	15,258	203	12,625.7	15,258	569	58	179	28	109	563	832	5.50	2,185	1,353
New Jersey-----	186	14,162.9	76.1	87	15,663	186	14,162.9	15,663	584	59	164	29	137	532	860	5.55	2,166	1,306
New York-------	2,924	204,170.1	69.8	86	15,807	2,924	204,170.1	15,807	579	60	158	30	124	491	760	4.86	2,163	1,403
North Carolina-	551	58,609.1	106.3	86	14,885	547	58,334.0	14,890	537	60	52	19	216	568	928	6.30	2,165	1,237
North Dakota---	129	7,830.2	60.7	84	13,250	129	7,830.2	13,250	460	57	98	50	123	349	668	5.10	1,651	983
Oklahoma-------	263	20,309.1	77.2	84	14,233	263	20,309.1	14,233	530	60	70	58	196	488	844	6.01	1,941	1,097
Pennsylvania---	3,769	220,799.7	58.5	86	15,386	3,769	220,799.7	15,386	574	64	147	31	97	499	841	5.52	2,108	1,267
Puerto Rico----	94	17,994.2	191.4	76	9,066	90	17,021.1	9,034	288	41	24	23	363	455	726	8.00	1,902	1,176
Rhode Island---	22	1,306.4	59.3	85	14,134	22	1,306.4	14,134	528	49	153	31	177	470	828	5.92	2,060	1,232
South Carolina-	216	29,942.5	138.6	86	13,325	216	29,942.5	13,325	517	57	43	16	243	520	861	6.56	1,989	1,128
South Dakota---	237	14,918.5	62.9	86	13,896	237	14,918.5	13,896	502	56	118	48	76	302	635	4.63	1,762	1,127
Tennessee------	633	56,269.1	88.9	85	13,840	633	56,269.1	13,840	512	58	43	20	201	533	855	6.24	1,921	1,066
Texas----------	530	65,689.7	123.9	84	14,055	528	65,420.2	14,060	505	68	24	53	241	554	893	6.39	2,006	1,113
Vermont--------	965	55,985.9	58.0	85	14,751	965	55,985.9	14,751	547	54	151	31	133	520	781	5.36	2,108	1,326
Virginia-------	904	85,181.7	94.2	86	14,993	904	85,181.7	14,993	542	54	50	17	201	497	840	5.64	2,064	1,225
West Virginia--	167	13,319.7	79.7	86	13,969	167	13,319.7	13,969	502	54	151	23	148	469	733	5.30	1,924	1,191
United States--	19,796	1,435,593.8	72.5	85	14,548	19,782	1,433,377.3	14,553	535	60	120	32	168	494	800	5.59	2,008	1,208
								Nonofficial										
Alabama--------	6	577.6	96.2	86	13,154	6	577.6	13,154	481	38	98	23	210	334	801	6.10	1,818	1,016
Arkansas-------	40	2,507.8	62.7	84	13,104	40	2,507.8	13,104	442	57	50	48	261	496	790	6.15	1,741	951
Connecticut----	36	2,769.7	76.9	85	14,073	36	2,769.7	14,073	508	60	207	19	150	564	887	6.35	1,960	1,072
Delaware-------	2	339.2	169.6	86	15,008	2	339.2	15,008	511	35	215	18	---	340	702	5.00	2,006	1,303
Florida--------	88	32,912.2	374.0	84	12,567	1	62.8	10,170	337	94	75	19	260	725	961	7.70	2,018	1,057
Georgia--------	101	17,115.4	169.4	83	12,864	7	722.5	13,250	472	70	28	18	223	601	855	6.74	1,875	1,020
Illinois-------	236	11,884.6	50.3	85	13,508	236	11,884.6	13,508	511	50	120	43	141	331	598	4.45	1,765	1,168
Indiana--------	179	9,699.6	54.1	85	13,710	177	9,317.7	13,873	512	55	69	31	151	385	696	5.18	1,826	1,130
Iowa-----------	1,067	49,853.1	46.7	85	12,910	1,066	49,823.4	12,910	481	49	107	46	134	303	558	4.37	1,643	1,085
Kansas---------	116	5,989.2	51.6	84	13,410	116	5,989.2	13,410	476	59	93	53	147	430	750	5.65	1,721	971
Kentucky-------	54	4,553.7	84.3	84	13,028	45	3,738.0	13,098	478	55	25	26	213	452	704	5.39	1,709	1,005
Louisiana------	7	1,766.7	252.3	83	13,893	2	126.1	13,994	463	75	47	18	337	498	914	6.61	2,054	1,140
Maine----------	41	3,669.4	89.5	84	14,574	41	3,669.4	14,574	520	64	190	31	157	566	844	5.90	2,070	1,226
Massachusetts--	19	1,035.1	54.4	83	12,703	19	1,035.1	12,703	465	51	154	33	108	458	745	5.94	1,884	1,139
Mississippi----	5	384.9	76.9	85	11,927	5	384.9	11,927	430	38	97	18	272	341	662	5.61	1,668	1,006
Missouri-------	177	10,256.8	57.9	85	13,105	177	10,256.8	13,105	474	58	93	40	185	456	774	5.94	1,699	925
Nebraska-------	61	4,763.1	78.0	86	13,254	61	4,763.1	13,254	480	55	115	51	129	303	626	4.71	1,667	1,042
New Hampshire--	28	1,912.4	68.3	86	13,878	28	1,912.4	13,878	502	55	177	35	108	506	702	5.10	1,898	1,196
New Jersey-----	33	2,145.2	65.0	86	13,546	33	2,145.2	13,546	501	47	157	27	149	420	708	5.27	1,879	1,171
New York-------	2,996	182,728.7	61.0	85	14,744	2,987	182,276.0	14,745	527	54	151	32	129	446	711	4.87	1,993	1,281
North Carolina-	40	3,108.5	77.7	85	14,088	17	994.4	13,922	521	58	33	16	220	570	886	6.33	2,055	1,169
North Dakota---	31	2,541.8	82.0	83	12,698	31	2,541.8	12,698	456	48	111	49	113	315	624	4.99	1,609	985
Oklahoma-------	50	4,241.7	84.8	81	12,762	50	4,241.7	12,762	463	55	57	57	195	471	815	6.47	1,721	906
Pennsylvania---	1,924	93,869.4	48.7	85	14,287	1,924	93,869.4	14,287	526	59	140	33	104	479	821	5.80	1,939	1,118
South Carolina-	12	1,189.5	99.1	84	12,600	1	74.9	8,508	298	55	48	14	238	521	849	6.83	1,838	989
South Dakota---	302	16,203.7	53.6	84	13,162	302	16,203.7	13,162	479	53	111	50	110	307	601	4.63	1,665	1,063
Tennessee------	1	169.1	169.1	87	13,821	1	169.1	13,821	574	45	---	28	180	370	690	4.99	1,971	1,281
Texas----------	35	5,461.9	156.0	83	13,372	23	3,567.1	13,498	471	70	34	53	236	576	889	6.74	1,892	1,003
Vermont--------	255	14,192.6	55.6	85	13,619	255	14,192.6	13,619	497	47	140	36	146	459	703	5.22	1,931	1,229
Virginia-------	33	1,962.4	59.4	86	14,632	31	1,858.1	14,763	527	53	55	20	199	473	788	5.49	1,966	1,178
West Virginia--	7	245.2	35.0	86	12,630	6	140.8	14,089	521	49	136	24	185	460	721	5.82	1,864	1,143
United States--	7,982	490,050.4	61.4	85	13,954	7,726	432,155.3	14,114	512	58	129	34	140	456	740	5.37	1,900	1,160

[1] Data reported from Iowa, New York, North Carolina, and Pennsylvania dairy records processing centers.

[2] Includes Puerto Rico.

Table 8.--State and national cow-year totals and averages for official and nonofficial herd records with solids-not-fat information reported, 1981

State	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat	Solids-not-fat	Solids-not-fat
	Number	Number	Number	Pct	Lb	Pct	Lb	Pct	Lb
California----------------	88	34,384.0	390.7	84	16,854	3.66	617	8.90	1,500
Iowa----------------------	4	244.3	61.0	86	16,800	3.70	622	9.12	1,532
Kansas--------------------	10	643.1	64.3	84	15,932	4.04	644	8.46	1,348
Nebraska------------------	4	235.9	58.9	85	13,816	3.76	520	8.96	1,238
North Dakota--------------	2	77.0	38.5	84	13,145	3.76	495	8.84	1,162
Oregon--------------------	29	2,633.0	90.8	86	13,726	4.31	591	9.13	1,253
United States-------------	137	38,217.3	278.9	84	16,597	3.70	614	8.91	1,479

Table 9.--Summary of cow herd averages for all official and nonofficial herd records by plan, 1981

Plan tag[1]	Records with milk					Records with fat					Records with protein			
	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Herds	Cow-years	Milk	Fat	Fat	Cow-years	Milk	Protein	Protein
	Number	Number	Number	Pct	Lb	Number	Number	Lb	Pct	Lb	Number	Lb	Pct	Lb
DHI	28,190	2,262,232.5	80.2	86	15,318	28,188	2,262,011.9	15,318	3.67	563	32,533.6	15,804	3.23	510
DHI-AP	1,053	84,202.7	79.9	85	14,776	1,053	84,202.7	14,776	3.64	537	349.0	13,686	3.36	460
DHI-APCS	2,748	314,774.8	114.5	84	13,255	2,731	312,121.6	13,271	3.58	475	---	---	---	---
DHIR	4,569	367,715.1	80.4	86	15,867	4,569	367,715.1	15,867	3.80	603	17,052.2	14,884	3.39	505
DHIR-AP	2	431.4	215.7	86	12,227	2	431.4	12,227	4.41	539	220.2	11,019	3.69	407
DHIR-APCS	128	17,903.3	139.8	85	11,582	128	17,903.3	11,582	4.38	508	133.6	11,790	3.89	459
OS	14,330	660,111.8	46.0	85	14,052	14,297	658,180.9	14,051	3.80	534	2,326.0	13,784	3.22	444
OS-AP	2,447	126,936.8	51.8	84	13,904	2,442	126,645.0	13,904	3.78	525	699.8	15,071	3.07	463
OS-APCS	40	3,174.7	79.3	85	13,358	40	3,174.7	13,358	3.67	491	---	---	---	---
OS-MO	416	46,665.2	112.1	84	13,943	347	32,837.6	14,357	3.71	517	---	---	---	---
OS-MO-AP	65	9,656.2	148.5	85	13,993	56	4,806.5	15,029	3.82	535	---	---	---	---
OS-ACT	57	6,197.8	108.7	84	13,663	55	6,116.1	13,712	3.61	493	---	---	---	---
OS-AP-ACT	2	140.3	70.1	84	13,359	2	140.3	13,359	3.67	490	---	---	---	---
OS-TCT	23	1,374.0	59.7	--	14,834	23	1,374.0	14,834	3.66	543	---	---	---	---
OS-MO-TMW	3	109.0	36.3	--	15,205	3	109.0	15,205	3.66	556	---	---	---	---
COMM	145	46,938.3	323.7	83	15,171	145	46,938.3	15,171	3.65	554	---	---	---	---
COMM-AP	93	9,097.6	97.8	85	14,372	93	9,097.6	14,372	3.61	519	---	---	---	---
SS-AP	3,493	209,022.3	59.8	85	14,490	3,493	209,022.3	14,490	3.58	519	6,853.1	14,854	3.14	467
SS-MO	209	48,637.8	232.7	83	12,781	21	4,462.5	13,923	3.99	510	---	---	---	---
SS-MO-AP	20	2,512.9	125.6	85	13,866	20	2,512.9	13,866	3.58	496	---	---	---	---
All plans	58,033	4,217,835.1	72.6	85	14,847	57,708	4,149,804.2	14,881	3.70	550	60,167.5	15,310	3.26	500

[1] DHI = Official DHI; DHI-AP = Official DHI AM-PM with Monitoring Device; DHI-APCS = Official DHI with Alternate AM-PM Component Sampling; DHIR = Official DHIR; DHIR-AP = Official DHIR AM-PM with Monitoring Device; DHIR-APCS = Official DHIR with Alternate AM-PM Component Sampling; OS = Owner-Sampler; OS-AP = Owner-Sampler AM-PM; OS-APCS = Owner-Sampler with Alternate AM-PM Component Sampling; OS-MO = Owner-Sampler Milk Only; OS-MO-AP = Owner-Sampler AM-PM Milk Only; OS-ACT = Owner-Sampler with Average (Breed or Plant) Components Used; OS-AP-ACT = Owner-Sampler AM-PM with Average (Breed or Plant) Components Used; OS-TCT = Owner-Sampler with Trimonthly Component Tests; OS-MO-TMW = Owner-Sampler Milk Only with Trimonthly Milk Weights; COMM = Commercial; COMM-AP = Commercial AM-PM; SS-AP = Supervised Sampling AM-PM; SS-MO = Supervised Sampling Milk Only; SS-MO-AP = Supervised Sampling AM-PM Milk Only.

Table 10.--Summary of cow-year totals and averages for all official herd records, 1939-81

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
1939-40	---	545,382	---	--	8,133	4.07	331
1940-41	---	591,103	---	--	8,225	4.07	335
1941-42	---	514,758	---	--	8,323	4.07	339
1942-43	---	375,914	---	--	8,325	4.06	338
1943-44	---	383,337	---	--	8,296	4.05	336
1944-45	---	384,360	---	--	8,592	4.03	346
1945-46	---	413,554	---	--	8,635	4.04	349
1946-47	---	533,061	---	--	8,638	4.03	348
1947-48	---	620,385	---	--	8,675	4.03	350
1948-49	---	729,150	---	--	8,907	4.03	359
1949-50	---	836,922	---	--	9,172	4.03	370
1950-51	---	885,859	---	--	9,195	4.02	370
1951-52	---	928,376	---	--	9,192	3.98	366
1952-53	---	1,020,326	---	--	9,253	3.98	368
1953-54	---	1,079,557	---	--	9,363	3.97	372
1954-55	---	1,175,378	---	--	9,502	3.95	375
1955-56	---	1,229,971	---	--	9,713	3.94	383
1956-57	---	1,256,129	---	--	9,894	3.93	389
1957-58	---	1,345,750	---	--	10,068	3.91	394
1958-59	---	1,406,665	---	--	10,327	3.88	401
1959-60[1]	---	1,343,725	---	--	10,561	3.87	409
1960-61	28,649	1,280,785	44.7	--	10,796	3.87	418
1961-62	32,794	1,531,826	46.7	--	11,032	3.86	426
1962-63	35,378	1,674,803	47.3	--	11,286	3.85	434
1963-64	35,689	1,746,475	48.9	--	11,685	3.83	447
1964-65	35,604	1,821,252	51.2	--	11,976	3.82	457
1965-66	34,886	1,852,533	53.1	--	12,127	3.81	462
1966-67	34,515	1,890,024	54.8	--	12,307	3.80	468
1967-68	33,560	1,924,200	57.3	85	12,397	3.80	471
1968-69	33,130	1,959,647	59.2	85	12,553	3.79	476
1969-70	31,138	1,937,390	62.2	85	12,750	3.79	483
1970-71	30,699	1,995,463	65.0	85	13,000	3.76	489
1971-72	30,190	2,050,132	67.9	85	13,226	3.75	496
1972-73	30,826	2,177,626	70.6	85	13,287	3.76	499
1973-74	30,280	2,221,349	73.4	85	13,163	3.75	493
1974-75	29,543	2,216,817	75.0	85	13,421	3.76	505
1975-76	29,634	2,240,752	75.6	86	13,632	3.75	511
1976-77	30,764	2,373,261	77.1	86	14,435	3.73	539
1977-78	31,783	2,476,946	77.9	86	14,631	3.70	542
1978-79	32,831	2,571,361	78.3	86	14,644	3.70	542
1979-80	34,449	2,771,379	80.4	85	14,786	3.70	547
1980[2]	35,206	2,867,177	81.4	86	14,960	3.70	553
1981	36,690	3,047,260	83.0	86	15,134	3.69	558

[1] National test year was established to begin May 1 in 1960. No report was prepared in 1960; therefore, averages of data for 1959 and 1960 were used. In previous years, beginning date varied by State.

[2] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 11.--Summary of cow-year totals and averages for all official herd records with feeding and other information reported, 1939-81[1]

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat	Concentrate	Succulent forage	Dry forage	Pasture days	Feed cost/ cwt milk	Cost of concentrate	Feed cost	Value of product	Income over feed cost
	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
1939-40---	19,330	467,775	24.2	--	8,049	4.05	326	--	---	--	---	0.84	32	68	165	97
1940-41---	20,590	500,340	24.3	--	8,182	4.06	332	--	---	--	---	.86	34	70	176	106
1941-42---	17,341	430,057	24.8	--	8,271	4.06	336	--	---	--	---	.99	42	82	206	124
1942-43---	12,006	306,142	25.5	--	8,219	4.06	334	--	---	--	---	1.20	53	99	245	146
1943-44---	11,433	308,678	27.0	--	8,141	4.05	330	--	---	--	---	1.45	63	118	274	156
1944-45---	11,204	304,748	27.2	--	8,434	4.02	339	--	---	--	---	1.49	68	128	302	174
1945-46---	11,795	318,461	27.0	--	8,440	4.05	342	--	---	--	---	1.54	70	130	314	184
1946-47---	15,566	418,738	26.9	--	8,454	4.02	340	--	---	--	---	1.67	79	141	352	211
1947-48---	18,573	494,036	26.6	--	8,429	4.01	338	--	---	--	---	1.96	95	165	388	223
1948-49---	22,312	586,815	26.3	--	8,701	4.02	350	--	---	--	---	1.79	85	156	390	234
1949-50---	24,841	675,685	27.2	--	8,949	4.01	359	--	---	--	---	1.64	76	147	359	212
1950-51---	26,134	721,311	27.6	--	8,983	4.02	361	--	---	--	---	1.71	81	154	370	216
1951-52---	26,423	768,916	29.1	--	9,015	3.97	358	--	---	--	---	1.83	87	165	399	234
1952-53---	18,557	525,346	28.3	--	9,069	3.96	359	30	56	37	168	2.14	101	194	461	267
1953-54---	26,834	748,234	27.9	--	9,117	3.96	361	28	55	37	174	2.06	93	188	434	246
1954-55---	28,727	822,254	28.6	--	9,261	3.94	365	28	61	37	178	1.98	89	183	429	246
1955-56---	28,254	849,344	30.1	--	9,470	3.93	372	29	64	39	174	1.91	86	181	433	252
1956-57---	27,133	863,275	31.8	--	9,621	3.92	377	30	66	39	173	1.90	88	183	448	265
1957-58---	27,525	900,269	32.7	--	9,787	3.91	383	31	69	40	171	1.94	92	190	462	272
1958-59---	27,796	902,074	32.5	--	10,042	3.89	391	33	75	40	174	1.94	93	195	475	280
1959-60---	23,220	795,892	34.3	--	10,045	3.89	391	33	76	40	169	1.95	93	196	479	283
1960-61---	18,644	689,710	37.0	--	10,048	3.88	390	32	78	39	163	1.97	94	198	485	287
1961-62---	22,853	882,827	38.6	--	10,676	3.87	413	36	82	40	175	1.94	103	207	502	295
1962-63---	27,093	1,089,290	40.2	84	10,983	3.85	423	39	92	40	156	2.02	113	222	501	279
1963-64---	27,893	1,173,099	42.1	84	11,428	3.84	439	42	98	38	151	2.07	120	237	521	284
1964-65---	28,237	1,229,676	43.5	85	11,744	3.82	449	44	102	38	151	2.08	127	244	539	295
1965-66---	28,013	1,260,621	45.0	85	11,885	3.81	453	45	108	36	114	2.15	133	256	559	303
1966-67---	27,483	1,282,357	46.7	85	12,030	3.82	459	47	113	36	---	2.20	143	265	631	366
1967-68---	25,447	1,257,600	49.4	85	12,121	3.81	462	48	120	34	134	2.27	149	271	667	395
1968-69---	25,208	1,271,983	50.5	85	12,223	3.80	465	49	---	33	132	2.21	146	266	700	434
1969-70---	23,130	1,227,860	53.1	85	12,428	3.79	471	50	124	32	129	2.23	153	273	736	463
1970-71---	22,824	1,240,414	54.3	85	12,659	3.77	477	51	116	33	120	2.30	165	287	767	480
1971-72---	20,987	1,211,464	57.7	85	12,775	3.75	479	52	116	30	122	2.39	174	301	791	490
1972-73---	22,628	1,322,782	58.5	85	12,801	3.76	481	52	118	30	113	2.54	187	321	821	500
1973-74---	20,083	1,217,462	60.6	85	12,604	3.74	472	51	118	29	116	3.40	262	422	989	567
1974-75---	20,444	1,297,541	63.5	85	13,024	3.76	489	51	123	29	110	4.11	318	527	1,114	587
1975-76---	20,470	1,318,140	64.4	86	13,326	3.74	498	52	126	28	113	4.23	315	557	1,229	672
1976-77---	17,642	1,210,810	68.6	86	13,849	3.75	519	55	129	28	112	4.46	358	609	1,371	762
1977-78---	18,392	1,299,256	70.6	86	13,978	3.71	518	57	126	28	113	4.44	355	612	1,404	792
1978-79---	18,587	1,310,083	70.5	86	14,129	3.70	522	58	126	30	109	4.49	372	629	1,555	927
1979-80---	18,473	1,282,145	69.4	86	14,227	3.69	525	59	128	30	107	4.75	411	677	1,750	1,073
1980[2]-----	18,272	1,280,895	70.1	86	14,359	3.69	530	59	126	31	87	4.90	437	715	1,851	1,136
1981------	19,796	1,435,594	72.5	85	14,548	3.68	535	60	120	32	168	5.59	494	800	2,008	1,208

[1] Prior to 1952, individual feeds were not reported. Only cows and herds from States reporting feeding and other information were included.

[2] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 12.--Summary of cow-year totals and averages for all nonofficial herd records, 1962-81

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
1962-63-------	14,761	423,545	28.7	--	10,606	3.73	396
1963-64-------	13,574	385,493	28.4	--	10,885	3.71	404
1964-65-------	18,409	559,608	30.4	--	11,402	3.71	423
1965-66-------	19,172	598,133	31.2	--	11,472	3.70	425
1966-67-------	17,912	575,816	32.1	--	11,607	3.72	432
1967-68-------	17,318	592,647	34.2	84	11,847	3.72	441
1968-69-------	17,908	614,939	34.3	84	11,932	3.72	444
1969-70-------	16,971	611,819	36.1	84	12,185	3.72	453
1970-71-------	16,569	612,080	36.9	84	12,413	3.71	460
1971-72-------	16,107	618,088	38.4	84	12,544	3.74	466
1972-73-------	16,183	631,269	39.0	84	12,488	3.75	468
1973-74-------	16,037	639,964	39.9	85	12,353	3.75	463
1974-75-------	14,704	610,910	41.5	85	12,503	3.80	475
1975-76-------	16,784	753,089	44.9	85	13,104	3.79	497
1976-77-------	17,662	815,988	46.2	85	13,539	3.76	509
1977-78-------	18,675	891,738	47.8	85	13,771	3.75	516
1978-79-------	19,248	933,631	48.5	85	13,847	3.77	522
1979-80-------	19,328	953,595	49.3	85	13,969	3.77	527
1980[1]---------	19,617	980,870	50.0	85	14,080	3.76	529
1981----------	21,343	1,170,575	54.8	85	14,101	3.76	530

[1] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 13.--Summary of cow-year totals and averages for all nonofficial herd records with feeding and other information reported, 1962-81

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat	Concentrate	Succulent forage	Dry forage	Pasture days	Feed cost/ cwt milk	Cost of concentrate	Feed cost	Value of product	Income over feed cost
	Number	Number	Number	Pct	Lb	Pct	Lb	Cwt	Cwt	Cwt	Number	Dol	Dol	Dol	Dol	Dol
1962-63---	4,165	136,781	32.8	83	10,785	3.72	402	37	83	46	147	2.03	113	219	460	241
1963-64---	3,033	80,172	26.4	83	10,987	3.74	411	40	80	44	143	1.86	103	204	427	223
1964-65---	6,355	197,385	31.0	84	11,470	3.72	427	41	89	44	---	1.99	119	228	486	258
1965-66---	7,096	224,616	31.6	84	11,574	3.72	430	42	95	42	---	2.05	121	237	499	262
1966-67---	7,537	243,943	32.4	84	11,645	3.72	433	43	98	43	---	2.08	130	242	563	321
1967-68---	5,928	212,380	35.8	84	11,834	3.72	440	44	103	40	130	2.21	142	259	615	357
1968-69---	7,614	263,703	34.6	84	11,953	3.71	443	46	---	41	123	2.05	133	243	633	391
1969-70---	7,134	259,195	36.3	84	12,102	3.69	446	47	104	40	116	2.08	139	249	666	417
1970-71---	6,792	254,890	37.5	84	12,292	3.68	452	48	93	39	106	2.11	147	258	696	439
1971-72---	6,324	246,148	38.9	84	12,327	3.67	453	49	90	38	106	2.17	152	265	709	444
1972-73---	6,570	257,026	39.1	84	12,214	3.71	453	49	94	38	96	2.30	156	277	728	450
1973-74---	6,125	247,527	40.4	84	12,151	3.69	448	48	94	38	97	3.05	217	367	899	533
1974-75---	5,562	234,692	42.2	84	12,303	3.72	458	47	103	38	90	3.93	271	478	967	489
1975-76---	7,079	326,135	46.1	85	12,980	3.71	481	49	110	37	92	4.20	283	540	1,149	610
1976-77---	5,605	280,566	50.1	85	13,166	3.71	488	50	112	33	95	4.32	315	563	1,266	703
1977-78---	5,876	300,951	51.2	85	13,448	3.68	495	51	116	32	94	4.27	311	569	1,307	738
1978-79---	6,014	309,028	51.4	85	13,695	3.69	505	53	118	33	84	4.27	326	581	1,473	891
1979-80---	6,173	320,172	51.9	85	13,864	3.65	506	53	120	33	83	4.52	364	622	1,659	1,037
1980[1]-----	6,428	337,846	52.6	85	13,945	3.65	509	53	120	34	76	4.66	382	648	1,748	1,100
1981------	7,982	490,050	61.4	85	13,954	3.67	512	58	129	34	140	5.37	456	740	1,900	1,160

[1] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 by one-third.

Table 14.--Comparison of yield of cows on official test, nonofficial test, and all other cows, 1962-81

Test year	Official				Nonofficial				All other cows[2]			Superiority of official cows		Superiority of nonofficial cows	
	Herds[1]	Cow-years[1]	Milk	Fat	Herds[1]	Cow-years[1]	Milk	Fat	Cow-years[3]	Milk[4]	Fat[4]	Milk	Fat	Milk	Fat
	Number	Number	Lb	Lb	Number	Number	Lb	Lb	Number	Lb	Lb	Lb	Lb	Lb	Lb
1962-63--	41,937	2,006,534	11,286	434	25,376	726,478	10,606	396	13,817,988	6,844	255	4,442	179	3,762	141
1963-64--	40,670	2,010,144	11,685	447	25,598	752,229	10,885	404	13,206,127	7,148	263	4,537	184	3,737	141
1964-65--	40,075	2,087,581	11,976	457	26,604	818,406	11,402	423	12,409,013	7,353	270	4,623	187	4,049	153
1965-66--	38,879	2,058,592	12,127	462	26,259	839,839	11,472	425	11,613,569	7,530	276	4,597	186	3,942	149
1966-67--	37,683	2,098,919	12,307	468	25,439	825,127	11,607	432	10,818,954	7,756	292	4,551	176	3,851	140
1967-68--	36,869	2,131,929	12,397	471	25,143	847,485	11,847	441	10,144,086	8,035	292	4,362	179	3,812	149
1968-69--	35,617	2,138,953	12,553	476	24,359	842,330	11,932	444	9,588,217	8,319	311	4,234	165	3,613	133
1969-70--	34,308	2,122,011	12,750	483	23,281	839,343	12,185	453	9,101,646	8,701	315	4,049	168	3,484	138
1970-71--	33,996	2,218,402	13,000	489	22,581	836,751	12,413	460	8,853,847	8,848	320	4,152	169	3,565	140
1971-72--	33,197	2,244,685	13,226	496	21,345	805,555	12,544	466	8,725,760	9,135	332	4,091	164	3,409	134
1972-73--	33,578	2,359,611	13,287	499	20,895	806,270	12,488	468	8,456,119	9,155	332	4,132	167	3,333	136
1973-74--	33,146	2,416,669	13,163	493	19,738	783,195	12,353	463	8,097,136	9,047	328	4,116	165	3,306	135
1974-75--	32,222	2,432,961	13,421	505	18,112	749,807	12,503	475	8,037,232	9,146	332	4,275	173	3,357	143
1975-76--	32,232	2,438,365	13,632	511	20,010	945,101	13,104	497	7,703,534	9,248	336	4,384	175	3,856	161
1976-77--	33,755	2,581,164	14,435	539	21,000	1,006,359	13,539	509	7,443,477	9,452	342	4,983	197	4,087	167
1977-78--	34,971	2,704,064	14,631	542	22,768	1,159,776	13,771	516	7,075,160	9,592	341	5,039	201	4,179	175
1978-79--	36,105	2,792,175	14,644	542	22,745	1,201,500	13,847	522	6,845,325	9,434	344	5,210	198	4,413	178
1979-80--	37,526	2,966,558	14,786	547	22,943	1,225,311	13,969	527	6,882,131	10,247	369	4,539	178	3,722	158
1980[5]----	39,524	3,197,353	14,960	553	23,451	1,282,715	14,080	529	6,654,932	9,991	359	4,969	194	4,089	170
1981-----	40,933	3,382,977	15,134	558	24,910	1,407,203	14,101	530	6,316,820	10,112	362	5,022	196	3,989	168

[1] Number of herds and cow-years is enrollment Jan. 1 of second year through 1979-80 and for 1981 in testing year 1980 as reported in the annual participation reports. Number of all cows used in this table included Puerto Rico and Virgin Islands for first time in 1979-80. Figures for enrollment for 1978-79 are different from those in 1979 participation report because of a reporting error. Yield is from these herd average reports.

[2] Derived from national cow population and yield figures, excluding heifers not fresh. See Dairy Herd Impr. Ltr. 55(2) for years before 1979; see successive February issues of "Milk Production" and "Cattle" distributed by the Economics, Statistics, and Cooperatives Service, USDA, for 1979 and later.

[3] Since 1969-70, cow-years were calculated by subtracting Jan. 1 enrollment of tested cows from Jan. 1 estimate of all cows.

[4] See Dairy Herd Impr. Ltr. 55(2) for calculation of milk yield before 1975-76. Beginning with 1975-76, yield values for cows on all testing plans that include butterfat testing were subtracted from national values.

[5] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 15.--Yield and value of product for all national milk cows for selected years, 1940-81[1]

Year	Average number of milk cows[2]		Average yield per cow			Total milk produced	Total fat produced	Total farm value of milk produced
	Annual	December	Milk	Fat	Fat			
	Thousands	Thousands	Lb	Pct	Lb	Million lb	Million lb	1,000 dol
1940	23,671	---	4,622	3.97	183	109,412	4,343	1,930,935
1942	25,027	---	4,736	3.97	188	118,533	4,704	2,867,340
1944	25,597	---	4,572	3.98	182	117,023	4,657	3,567,852
1946	24,089	---	4,886	3.97	194	117,697	4,677	4,512,653
1948	22,336	---	5,044	3.97	200	112,671	4,478	5,295,194
1950	21,944	---	5,314	3.96	210	116,602	4,618	4,431,995
1952	21,338	---	5,374	3.90	210	114,671	4,476	5,425,543
1954	21,581	---	5,657	3.86	219	122,094	4,717	4,757,279
1956	20,501	---	6,090	3.82	233	124,860	4,773	5,075,318
1958	18,711	---	6,585	3.78	249	123,220	4,658	5,037,729
1960	17,515	---	7,029	3.76	264	123,109	4,628	5,158,116
1962	16,842	---	7,496	3.74	280	126,251	4,718	5,182,148
1964	15,677	---	8,099	3.70	300	126,967	4,699	5,304,899
1966	14,071	13,756	8,522	3.69	314	119,912	4,426	5,801,039
1968	12,832	12,571	9,135	3.67	335	117,225	4,305	6,206,150
1970	12,000	11,916	9,751	3.66	357	117,007	4,284	6,757,294
1972	11,700	11,630	10,259	3.67	377	120,025	4,410	7,361,435
1974	11,230	11,215	10,293	3.66	377	115,586	4,238	9,723,186
1976	11,032	11,003	10,894	3.66	399	120,180	4,402	11,706,043
1978	10,803	10,792	11,243	3.67	412	121,461	4,455	12,956,601
1980	10,810	10,862	11,889	3.65	434	128,525	4,692	16,890,254
1981	10,919	10,998	12,147	3.64	442	132,634	4,827	18,398,974

[1] Data through 1959 obtained from Statistical Bulletin 303, Economic Research, 1962; for 1960 through 1964, from Agricultural Statistics, 1971, p. 381; for 1965 through 1969, from Statistical Bulletin 509, Statistical Research Service; for 1970 through 1974, from Statistical Bulletins 589 and 591, Economics, Statistics, and Cooperatives Service(ESCS,USDA); and for 1975 through 1978, from Statistical Bulletin 651, ESCS. Preliminary data for cow numbers and yield for 1979 through 1981 obtained from successive February issues of "Milk Production," ESCS; preliminary data for fat yield and total farm value of milk produced, from "Milk Production, Disposition, Income," published in May each year by ESCS. Final estimates are published at approximately 5-year intervals.

[2] Excludes data from Puerto Rico and Virgin Islands.

Table 16.--Weighted percentage of records by dairy records processing center (DRPC) for cows milked 3 times a day (3X) as calculated from herd-average records and lactation records in progress (RIP's) for July 1982 USDA-DHIA Sire Summary

DRPC	Weighted percentage of records from--	
	Herd-average records	Lactation RIP's
California	9.3	11.4
Iowa	2.2	2.4
Michigan[1]	---	6.9
Minnesota[1]	---	1.3
New York	6.2	5.8
North Carolina	4.4	5.0
Pennsylvania[1]	---	2.3
Utah[1]	---	15.7
Wisconsin	2.4	2.5

[1] No 3X reporting for herd-average records.

USDA SUMMARY OF 1981 U.S. GOAT HERD AVERAGES

By Gerald J. King and George R. Wiggans[1]

State and national summaries of dairy goat herd averages for milk and fat yield have been computed by the U.S. Department of Agriculture. The averages are from herds that (1) were enrolled in official and nonofficial National Cooperative Dairy Herd Improvement Program plans during 1981, (2) had been on test for at least 365 days prior to their last sample day on or before December 31, 1981, and (3) had does that averaged more than 40 percent days in milk and more than 500 pounds of milk. The percent days in milk is a measure of the proportion of the herd milking and can be affected by reproductive problems, herd turnover rate, and length of dry periods.

Data in table 1 show 10,684.2 doe-years (total days on test for all does divided by 365 days) in 1,038 herds for 1981. Nationally the average yield on a doe-year basis was 1,715 pounds of milk and 65 pounds of fat. Since the 1980 test year, the number of herds increased by 66, and the number of doe-years decreased by 317.6.[2] The average number of doe-years per herd was 10.3, down by 1.0 since the 1980 test year. The increases over the 1980 test year's yield averages were 72 pounds of milk and 3 pounds of fat.

The average yield by breed is in table 2. Of the five major breeds, Saanens had the highest milk yield, and Alpines and La Manchas tied for the highest fat yield. Table 3 shows the distribution of herds by milk yield level. Twenty-four herds had milk yield above 3,000 pounds. Examination of the data indicated that these herds were below average in number of doe-years and above average in percent days in milk. The highest average milk yield was 3,877 pounds by a Toggenburg herd. The distribution of herds by fat yield is in table 4. The highest fat yield was 232 pounds by a Nubian herd.

Table 5 presents the distribution of herds by doe-years per herd. Most dairy goat herds were small; over 70 percent had 10 or fewer doe-years per herd. The most common herd size was 5.1 to 10 doe-years per herd, and the largest total number of doe-years occurred in herds of that size. The 17 herds with more than 50 doe-years per herd (1.6 percent) had 13.0 percent of the doe-years. The largest herd had 227.6 doe-years. Table 6 gives the distribution of herds by percent days in milk. About 64 percent of the herds had between 71 and 90 percent days in milk.

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[1] Dairy husbandman and research geneticist (animal), respectively, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R. USDA summary of 1980 U.S. goat herd averages. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 57(4), pp. 23-26. 1981.

Table 1.--State and national doe-year totals and averages for 1981

State[1]	Herds	Doe-years	Doe-years per herd	Days in milk	Milk	Fat	Fat
	Number	Number	Number	Pct	Lb	Pct	Lb
Alabama-------------	5	35.3	7.1	69	1,349	4.59	62
Arizona-------------	38	320.0	8.4	73	1,690	3.81	64
Arkansas------------	15	341.8	22.8	73	1,377	3.48	48
California----------	203	2,828.8	13.9	74	1,861	3.66	68
Colorado------------	28	161.4	5.8	73	1,789	3.91	70
Connecticut---------	13	127.4	9.8	79	1,808	3.96	72
Delaware------------	2	11.5	5.7	69	1,302	4.76	62
Florida-------------	11	152.1	13.8	63	1,123	3.82	43
Georgia-------------	15	100.7	6.7	73	1,508	4.27	64
Idaho---------------	6	63.0	10.5	90	1,817	3.96	72
Illinois------------	10	125.7	12.6	73	1,755	3.47	61
Indiana-------------	7	52.2	7.5	77	1,521	3.66	56
Iowa----------------	12	125.7	10.5	77	1,618	3.25	53
Kansas--------------	16	97.3	6.1	72	1,375	3.90	54
Louisiana-----------	8	60.3	7.5	83	1,908	4.28	82
Maine---------------	36	275.5	7.7	80	1,606	3.78	61
Maryland------------	38	289.5	7.6	73	1,639	3.44	56
Massachusetts-------	18	128.9	7.2	74	1,528	3.87	59
Michigan------------	26	203.0	7.8	99	1,633	3.83	63
Minnesota-----------	13	165.9	12.8	83	2,015	3.67	74
Mississippi---------	1	8.4	8.4	63	1,043	4.41	46
Missouri------------	17	283.6	16.7	74	1,592	3.63	58
Montana-------------	6	28.8	4.8	74	1,906	3.55	68
Nebraska------------	2	13.8	6.9	84	1,953	3.38	66
Nevada--------------	9	85.0	9.4	69	1,605	3.68	59
New Hampshire-------	20	161.1	8.1	78	1,740	3.61	63
New Jersey----------	11	146.3	13.3	80	1,699	3.61	61
New Mexico----------	12	88.9	7.4	76	1,821	3.78	69
New York------------	57	437.2	7.7	78	1,808	4.01	72
North Carolina------	7	49.2	7.0	82	1,951	3.81	74
North Dakota--------	1	10.3	10.3	72	1,596	3.82	61
Ohio----------------	37	371.2	10.0	77	1,677	4.13	69
Oklahoma------------	13	145.9	11.2	72	1,710	3.81	65
Oregon--------------	162	1,311.1	8.1	77	1,793	4.22	76
Pennsylvania--------	12	164.9	13.7	70	1,554	3.72	58
Puerto Rico---------	1	53.0	53.0	65	1,112	3.51	39
Rhode Island--------	6	69.9	11.6	80	1,586	3.66	58
South Carolina------	1	14.5	14.5	79	1,923	3.54	68
Tennessee-----------	12	88.7	7.4	72	1,742	3.69	64
Texas---------------	21	263.3	12.5	73	1,503	4.14	62
Utah----------------	3	22.7	7.6	79	1,753	3.65	64
Vermont-------------	9	111.7	12.4	84	1,749	3.55	62
Virginia------------	11	145.0	13.2	79	1,655	3.96	65
Washington----------	44	357.4	8.1	77	1,776	3.97	71
West Virginia-------	5	43.9	8.8	74	1,375	3.61	50
Wisconsin-----------	38	542.4	14.3	80	1,521	3.70	56
United States-------	1,038	10,684.2	10.3	76	1,715	3.81	65

[1] Includes Puerto Rico.

Table 2.--Average milk and fat production by breed, 1981

Breed	Herds	Doe-years	Milk	Fat	Fat
	Number	Number	Lb	Lb	Pct
Alpine----------------------------	194	1,722.5	1,888	70	3.71
Experimental----------------------	3	15.0	1,609	61	3.76
La Mancha-------------------------	38	321.4	1,792	70	3.89
Nubian----------------------------	320	2,615.8	1,522	69	4.51
Saanen----------------------------	74	640.4	1,907	66	3.45
Toggenburg------------------------	98	970.5	1,876	64	3.44
Mixed[1]--------------------------	311	4,398.6	1,692	61	3.62
All breeds------------------------	1,038	10,684.2	1,715	65	3.79

[1] Includes herds with breed not reported.

Table 3.--Distribution of goat herds by milk yield, 1981

Milk level (lb)	Herds	Herds
	Number	Pct
501 - 1,000---------	50	4.8
1,001 - 1,500---------	279	26.9
1,501 - 2,000---------	391	37.7
2,001 - 2,500---------	214	20.6
2,501 - 3,000---------	80	7.7
More than 3,000---------	24	2.3
Total-------------------	1,038	100.0

Table 4.--Distribution of goat herds by fat yield, 1981

Fat (lb)	Herds	Herds
	Number	Pct
Less than 26-----------	5	0.5
26 - 50-----------	162	15.6
51 - 75-----------	530	51.1
76 - 100-----------	261	25.1
101 - 125-----------	66	6.4
More than 125-----------	14	1.3
Total-------------------	1,038	100.0

Table 5.--Distribution of goat herds by doe-years per herd, 1981

Herd size (number)	Herds	Herds	Doe-years	Doe-years
	Number	Pct	Number	Pct
Less than 5.1-----	317	30.5	1,113.3	10.4
5.1 - 10.0-----	415	40.0	3,037.3	28.4
10.1 - 15.0-----	142	13.7	1,732.1	16.2
15.1 - 20.0-----	66	6.4	1,133.7	10.6
20.1 - 25.0-----	36	3.5	820.3	7.7
25.1 - 30.0-----	23	2.2	617.3	5.8
30.1 - 35.0-----	9	.9	290.7	2.7
35.1 - 40.0-----	6	.6	224.8	2.1
40.1 - 45.0-----	1	.1	44.1	.4
45.1 - 50.0----	6	.6	285.9	2.7
More than 50.0-----	17	1.6	1,384.7	13.0
Total-------------	1,038	100.0	10,684.1	100.0

Table 6.--Distribution of goat herds by percent days in milk, 1981

Days in milk (pct)	Herds	Herds
	Number	Pct
41 - 50----------------	26	2.5
51 - 60----------------	76	7.3
61 - 70----------------	172	16.6
71 - 80----------------	302	29.1
81 - 90----------------	365	35.2
91 - 100----------------	97	9.3
Total-------------------	1,038	100.0

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A dairy recordkeeping plan
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- Counts of 305-Day Lactation Records Excluded from Genetic Evaluations for 1982
- State and National Standardized Lactation Averages by Breed for Cows on Official Test, Calving in 1980

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Dairy Herd Improvement Letter

COUNTS OF 305-DAY LACTATION RECORDS EXCLUDED FROM GENETIC EVALUATIONS FOR 1982

By George R. Wiggans and Gerald J. King[1]

Some lactation records for cows enrolled in production testing plans of the National Cooperative Dairy Herd Improvement Program are not included in computations of genetic evaluations. Only records from official plans, within edit limits, and with sire identification are used.

Table 1 gives the number of 305-day records excluded from the July 1982 and January 1983 Sire Summaries by State. Data for these two Summaries represent approximately 1 calendar year's data. Completed or terminated records of fewer than 305 days are considered 305-day records. The number of records received from a State may have exceeded the number of cows on test in that State because (1) a record for the same lactation was submitted more than once because of corrections, (2) a cow completed two 305-day records in one 12-month period, or (3) a cow's ownership changed. The number of official 305-day records excluded after comparison with previously submitted records is included in tables 1 and 2 under the column heading "Conflict." This count was obtained by selecting current 305-day records from the file of excluded records.

About 25 percent of 305-day lactation records were excluded from genetic evaluations because they were from nonofficial plans, the same as for 1981.[2] All but 6 States--Delaware, Hawaii, Nebraska, New Jersey, New Mexico, and Rhode Island--had an increase in percentage of records that were available for genetic evaluations. The decreases for the six States ranged from 0.1 to 1.4 percent. Five States--Georgia, Iowa, Louisiana, Nevada, and South Carolina--increased proportion of records used by over 5.0 percent.

Table 2 summarizes the data for the 10 States in table 1 with the most official records. The number of errors varied considerably among individual States. Of the 10 States with the most official records, 4 had less than 40.0 percent and 1 had more than 60.0 percent of their records excluded. Most States had little change from 1981. The national average was 49.0 percent excluded, down slightly from 50.7 percent for 1981.

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[1] Research geneticist (animal) and dairy husbandman, respectively, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R., and King, G. J. Counts of 305-day lactation records excluded from genetic evaluations, 1981. Information distributed on February 3, 1982, to State extension dairy specialists advising on the National Cooperative Dairy Herd Improvement Program. 1982.

Among official records, 3.1 percent were unusable because of termination code 9, down from 3.8 percent for 1981. (Termination code 9 indicates that records should not be used for genetic evaluations because production information is not reliable.) Nearly 42 percent of official records had missing sire identification, which was the primary reason for exclusion of official records. Only 0.4 percent of official records were excluded because of errors. Counts for records with missing sire identification or errors cannot be compared with counts for 1981 because of a change in editing procedures in 1981. About 3.7 percent of official records were excluded because of conflicts, down from 4.0 percent for 1981.

Summary

Official 305-day records provide the basic information for the genetic improvement program. Only properly identified records can contribute to genetic evaluations. The accuracy of genetic evaluations of bulls could be improved and indexes computed for more cows if more of the records received had complete animal identification.

When a record is not used in computing genetic evaluations for a reason other than conflict, such as missing sire identification, only that record is excluded. However, when a record is compared with other records for the same cow and a conflict, such as differing birth date or parent identification, is detected, **all** records for that cow are excluded and existing information thus is eliminated. Careful review of records returned because of conflict may enable correction of errors and restoration of information.

Table 1.--Disposition of 305-day records by State, 1982

State[1]	Records			Official records excluded because of--				Official 305-day records available for Sire Summary	
	Total	Nonofficial[2]	Official	Termination code 9[3][4]	Zero sire No.	Error[5]	Conflict[6]		
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Percent*
Alabama	25,604	940	24,664	430	14,188	4	926	9,116	37.0
Alaska	241	170	71	1	0	0	0	70	98.6
Arizona	52,891	894	51,997	697	36,165	336	1,181	13,618	26.2
Arkansas	18,317	2,418	15,899	2,215	7,083	10	727	5,864	36.9
California	567,306	52,945	514,361	17,234	285,593	2,489	15,556	193,489	37.6
Colorado	35,685	3,174	32,511	1,115	16,075	464	1,388	13,469	41.4
Connecticut	29,238	5,067	24,171	0	6,604	30	882	16,655	68.9
Delaware	4,897	550	4,347	0	1,456	5	198	2,688	61.8
Florida	67,173	46,271	20,902	576	12,474	49	1,011	6,792	32.5
Georgia	58,789	18,469	40,320	812	22,104	20	1,529	15,855	39.3
Hawaii	7,189	3,422	3,767	42	2,339	10	78	1,298	34.5
Idaho	58,777	6,824	51,953	1,219	31,193	1,359	1,775	16,407	31.6
Illinois	93,286	11,849	81,437	5,920	29,728	242	3,221	42,326	52.0
Indiana	73,598	13,303	60,295	957	19,523	92	2,877	36,846	61.1
Iowa	154,809	66,546	88,263	7,355	29,929	247	3,591	47,141	53.4
Kansas	64,068	5,719	58,349	3,930	21,590	111	2,436	30,282	51.9
Kentucky	40,840	6,622	34,218	590	17,031	24	1,299	15,274	44.6
Louisiana	32,476	1,968	30,508	555	15,378	36	2,091	12,448	40.8
Maine	28,884	4,950	23,934	0	4,487	43	870	18,534	77.4
Maryland	59,223	2,799	56,424	781	15,664	393	2,612	36,974	65.5
Massachusetts	21,409	2,198	19,211	0	3,529	42	680	14,960	77.9
Michigan	184,312	52,763	131,549	662	61,705	135	6,084	62,963	47.9
Minnesota	379,523	127,005	252,518	15,109	85,629	68	7,574	144,138	57.1
Mississippi	28,113	692	27,421	430	16,031	14	989	9,957	36.3
Missouri	80,344	11,384	68,960	7,778	29,205	83	2,559	29,335	42.5
Montana	11,002	1,413	9,589	66	6,072	139	481	2,831	29.5
Nebraska	44,204	4,712	39,492	3,719	18,613	26	1,219	15,915	40.3
Nevada	11,586	492	11,094	102	7,360	376	173	3,083	27.8
New Hampshire	15,960	2,639	13,321	0	2,378	9	495	10,439	78.4
New Jersey	17,155	3,068	14,087	0	3,481	22	434	10,150	72.1
New Mexico	34,890	2,187	32,703	554	21,425	100	781	9,843	30.1
New York	439,102	221,376	217,726	0	44,408	276	7,464	165,578	76.0
North Carolina	77,394	5,603	71,791	1,150	32,426	83	4,115	34,017	47.4
North Dakota	15,445	2,210	13,235	2,038	6,874	12	382	3,929	29.7
Ohio	137,673	34,979	102,694	1,272	31,140	913	4,418	64,951	63.2
Oklahoma	32,133	2,359	29,774	3,294	14,013	23	1,199	11,245	37.8
Oregon	58,942	5,398	53,544	3,681	23,974	849	2,820	22,220	41.5
Pennsylvania	325,488	100,490	224,998	2,110	50,884	2,456	7,502	162,046	72.0
Puerto Rico	29,298	285	29,013	908	25,030	71	877	2,127	7.3
Rhode Island	1,363	42	1,321	0	370	0	43	908	68.7
South Carolina	33,109	1,482	31,627	524	13,532	26	1,157	16,388	51.8
South Dakota	43,057	21,739	21,318	2,383	10,116	23	670	8,126	38.1
Tennessee	62,254	514	61,740	647	36,768	15	2,056	22,254	36.0
Texas	91,392	6,881	84,511	1,869	51,756	54	2,831	28,001	33.1
Utah	45,165	3,003	42,162	884	23,257	304	1,534	16,183	38.4
Vermont	81,512	20,571	60,941	1	16,358	99	2,111	42,372	69.5
Virginia	95,887	2,351	93,536	1,523	27,513	91	5,252	59,157	63.2
Washington	104,398	13,288	91,110	1,389	48,393	730	3,330	37,268	40.9
West Virginia	14,370	1,140	13,230	0	3,891	5	496	8,838	66.8
Wisconsin	629,313	266,962	362,351	11,357	132,364	1,696	13,783	203,151	56.1
Wyoming	2,714	49	2,665	13	1,371	173	135	973	36.5
United States	4,621,798	1,174,175	3,447,623	107,892	1,438,470	14,877	127,892	1,758,492	51.0

[1] Includes Puerto Rico.

[2] Includes records with invalid identification correction codes.

[3] Includes a few records unusable for reasons other than termination code 9; e.g., test herd, invalid termination code, or missing or unreasonable birth or calving date.

[4] Values also affected by procedures of individual dairy records processing centers. For example, the New York center submits very few records with termination code 9. In contrast, the Iowa center submits many such records.

[5] Includes records with invalid or blank animal identification or blank production information.

[6] Includes records that conflict with previously submitted records or pedigree data in the Animal Improvement Programs Laboratory file; also includes records having production values outside U.S. Department of Agriculture limits.

Table 2.--Official 305-day records and proportion excluded for 10 States with most official records and for United States, 1982

State	Official records	Official records excluded because of-- Termination code 9	Zero sire No.	Error	Conflict	Total records excluded
	Number	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
California---------	514,361	3.4	55.5	0.5	3.0	62.4
Wisconsin ---------	362,351	3.1	36.5	.5	3.8	43.9
Minnesota---------	252,518	6.0	33.9	.0	3.0	42.9
Pennsylvania------	224,998	.9	22.6	1.1	3.3	28.0
New York---------	217,726	.0	20.4	.1	3.4	24.0
Michigan----------	131,549	.5	46.9	.1	4.6	52.1
Ohio---------------	102,694	1.2	30.3	.9	4.3	36.8
Virginia -----------	93,536	1.6	29.4	.1	5.6	36.8
Washington--------	91,110	1.5	53.1	.8	3.7	59.1
Iowa---------------	88,263	8.3	33.9	.3	4.1	46.6
United States-----	3,447,623	3.1	41.7	.4	3.7	49.0

STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES BY BREED FOR COWS ON OFFICIAL TEST, CALVING IN 1980

By Rex L. Powell[1]

Dairy records processing centers provide lactation records to USDA for research that includes genetic evaluations. Records only from cows on official test are used in genetic evaluations. Nearly half of the official records are not used. Most of them are from grade cows and are not usable because of missing sire identification and failure to pass other USDA edits.[2] [3] Data on records with missing sire identification are presented later in this article.[4] The number and average standardized yields of lactation records initiated in 1980 and eligible to contribute to genetic evaluations[5] are reported by State in table 1 for Ayrshire, Guernsey, and Holstein cows and in table 2 for Jersey, Brown Swiss, and Milking Shorthorn cows. Records were standardized for age and month of calving[6] and times milked per day.[7] Incomplete records were projected to 305 days.[8] Thus, the averages presented are on a 305-day, two-times-a-day, mature-equivalent basis. Fat percentages were computed from the average standardized milk and fat yields.

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R., and King, G. J. Counts of 305-day lactation records excluded from genetic evaluations for 1982. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 59(2), pp. 1-4. 1983.

[3] U.S. Department of Agriculture. Editing of lactation records used in USDA-DHIA genetic evaluations of sires and cows. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS-44-222, 46(6), 32 pp. 1970.

[4] Data on records with missing sire identification were prepared by George R. Wiggans and Gerald J. King.

[5] Because some lactation data included here may have been from cows without herdmate records, their records were not used in genetic evaluations.

[6] Norman, H. D., Miller, P. D., McDaniel, B. T., and others. USDA-DHIA factors for standardizing 305-day lactation records for age and month of calving. U.S. Dept. Agr. ARS-NE-40, 91 pp. 1974.

[7] Wiggans, G. R., and Grossman, M. Adjusting records from three-times-a-day to two-times-a-day milking basis. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(4), pp. 7-8. 1980.

[8] Wiggans, G. R., and Powell, R. L. Projection factors for milk and fat lactation records. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(1), 15 pp. 1980.

Tables 1 and 2 were compared with corresponding data from previous years, and changes are given in table 3. Numbers of records increased for all breeds except Guernsey, with an overall increase of 8 percent from 1979. The Brown Swiss records do not include an estimated 1,000 records that were temporarily unavailable because of changes in pedigree information. Average milk and fat yields per cow were higher than 1979 averages for all breeds, and increases were larger than the average changes since 1971.[9] Fat percentage decreased from 1979 for Guernseys, Holsteins, Jerseys, and Brown Swiss; remained the same for Ayrshires; and increased slightly for Milking Shorthorns. Since 1971, fat percentage has decreased for all breeds, but most noticeably for Jerseys. Changes for 1979-80 compared with the average annual changes for 1971-80 show that the former were more positive for number of records and yields but were mixed for fat percentage. Changes in data for particular State and breed combinations may be studied by comparing tables 1 and 2 with tables in the 1979 report[10] and in corresponding publications for previous years.

Information for cows of the Red and White breed are not included in the tables because of the small number of cows. Nationally, the 1,001 Red and White cows averaged 15,816 pounds of milk, 3.62 percent fat, and 573 pounds of fat. The averages for 924 cows in 1979 were 15,278 pounds of milk, 3.62 percent fat, and 554 pounds of fat.

Data corresponding to those in tables 1 and 2 but for records of cows with missing sire identification are in tables 4 and 5. The 1,125 Red and White cows with missing sire identification averaged 15,072 pounds of milk, 3.60 percent fat, and 543 pounds of fat. Average yields for cows with missing sire identification were lower than those for cows with identified sires for all breeds except Milking Shorthorn, for which records were few. The largest difference between average yields was 1,553 pounds of milk and 60 pounds of fat for Holsteins. The records with missing sire identification were about equal in number to those with sire identification for Holsteins and Red and Whites; for other breeds, the records with missing sire identification ranged from 6 to 27 percent of those with sire identification.

Interpretation of changes in average yield should be made in view of the many factors that can affect it. Although genetic change is expected to have a positive effect on yield, the feed availability and cost, milk and beef prices, and characteristics of herds entering and leaving official testing programs can affect the averages in either direction.

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[9] The earliest year for which averages computed on the same basis were available is 1971.

[10] Powell, R. L. State and national standardized lactation averages by breed for cows on official test, calving in 1979. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 58(1), pp. 1-5. 1982.

Table 1.--Number of records and State and national standardized lactation averages for Ayrshire, Guernsey, and Holstein cows on official test, calving in 1980, and with identified sires[1]

State[2]	Ayrshire				Guernsey				Holstein			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	53	12,132	3.63	440	145	10,518	4.35	458	5,620	15,762	3.54	557
Alaska	---	---	---	---	---	---	---	---	59	15,453	3.82	590
Arizona	1	17,050	3.45	589	521	11,720	4.58	537	8,344	17,802	3.51	625
Arkansas	9	12,548	3.79	475	221	10,354	4.39	454	3,620	15,686	3.38	531
California	203	14,570	3.92	571	2,591	12,875	4.59	590	153,938	18,992	3.60	683
Colorado	4	11,935	3.69	440	237	10,456	4.54	475	10,230	16,589	3.51	582
Connecticut	511	12,392	4.03	499	591	11,862	4.57	542	14,060	17,130	3.62	620
Delaware	121	12,628	4.21	532	13	12,705	5.02	637	2,430	17,680	3.57	631
Florida	177	11,100	3.46	383	388	10,117	4.17	422	3,354	16,033	3.38	543
Georgia	132	13,066	3.69	482	764	11,957	4.56	545	10,208	15,597	3.50	546
Hawaii	---	---	---	---	---	---	---	---	1,537	15,942	3.01	479
Idaho	48	11,855	3.72	441	393	11,078	4.64	513	12,143	16,971	3.46	588
Illinois	467	12,381	3.88	480	1,331	10,808	4.67	504	34,176	16,138	3.73	602
Indiana	351	12,918	3.96	512	3,093	11,450	4.70	538	26,185	16,691	3.66	611
Iowa	1,408	12,159	3.87	470	2,015	10,840	4.72	512	34,395	15,939	3.66	583
Kansas	470	12,008	3.73	448	522	10,846	4.50	489	25,939	15,856	3.53	559
Kentucky	227	11,276	3.76	424	298	10,975	4.61	506	10,572	15,726	3.59	564
Louisiana	109	10,365	3.59	372	1094	9,984	4.26	425	7,237	14,971	3.25	487
Maine	520	12,795	3.93	503	249	11,908	4.68	557	15,115	17,456	3.52	615
Maryland	583	11,418	3.95	451	1,061	10,862	4.65	505	31,413	16,415	3.65	598
Massachusetts	549	12,304	3.89	478	329	12,139	4.51	548	12,267	16,975	3.58	608
Michigan	171	12,138	3.67	445	1,853	11,410	4.66	532	53,677	17,200	3.62	622
Minnesota	1,143	12,221	3.86	471	4,289	10,840	4.63	502	119,237	16,276	3.59	585
Mississippi	175	11,347	3.59	407	257	10,934	4.40	481	5,835	15,629	3.43	536
Missouri	97	12,265	3.75	459	1,669	10,661	4.53	482	21,626	16,134	3.55	572
Montana	165	13,355	3.73	498	66	12,936	4.82	624	1,877	16,244	3.53	573
Nebraska	160	10,710	3.92	420	509	10,538	4.58	483	12,594	15,567	3.60	561
Nevada	---	---	---	---	---	---	---	---	1,764	17,891	3.31	592
New Hampshire	538	13,869	3.89	540	142	11,261	4.45	502	7,866	17,350	3.61	626
New Jersey	31	12,373	3.85	477	138	10,911	4.63	505	9,404	17435	3.64	635
New Mexico	180	15,123	3.78	571	517	12,872	4.32	556	8,277	17,743	3.55	630
New York	3,438	13,081	3.92	512	2,108	11,798	4.54	535	145,485	17,287	3.62	625
North Carolina	240	13,864	3.72	516	485	10,977	4.60	505	28,442	16,750	3.47	581
North Dakota	---	---	---	---	17	8,725	4.50	392	3,226	14,950	3.47	519
Ohio	1,245	12,559	3.88	487	2,662	11,462	4.70	538	48,967	17,184	3.68	632
Oklahoma	280	13,172	3.90	514	398	11,555	4.52	523	7,287	16,550	3.58	593
Oregon	267	12,664	3.90	494	1,065	11,633	4.59	535	12,758	17,642	3.56	627
Pennsylvania	1,410	13,500	4.01	541	4,931	11,552	4.70	543	139,030	17,161	3.70	635
Puerto Rico	---	---	---	---	---	---	---	---	1,967	11,027	3.32	366
Rhode Island	162	12,123	4.16	504	44	7,695	4.59	353	702	16,536	3.67	607
South Carolina	---	---	---	---	1,722	11,902	4.65	553	7,515	16,019	3.57	571
South Dakota	2	12,165	4.41	537	39	11,589	4.91	568	6,261	15,622	3.61	563
Tennessee	110	11,510	3.91	450	629	10,949	4.37	479	14,208	16,692	3.55	592
Texas	22	12,009	3.84	461	417	11,608	4.47	519	15,547	16,938	3.44	582
Utah	4	12,308	4.01	494	7	9,480	4.54	429	13,399	17,520	3.43	600
Vermont	1,581	13,181	3.81	502	501	11,861	4.55	540	31,423	16,991	3.55	603
Virginia	577	12,979	3.64	472	1,708	11,009	4.47	492	51,043	16,454	3.49	574
Washington	400	13,434	3.94	529	2,164	12,241	4.68	573	27,450	18,126	3.48	630
West Virginia	314	11,641	4.00	466	296	9,094	4.48	407	7,629	15,821	3.47	549
Wisconsin	1,147	12,702	3.86	490	6,837	11,539	4.65	536	160,942	17,045	3.69	630
Wyoming	---	---	---	---	24	14,756	4.42	652	765	16,152	3.34	540
United States	19,802	12,724	3.88	493	51,350	11,404	4.61	526	1,389,045	17,049	3.60	614

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 2.--Number of records and State and national standardized lactation averages for Jersey, Brown Swiss, and Milking Shorthorn cows on official test, calving in 1980, and with identified sires[1]

State[2]	Jersey				Brown Swiss				Milking Shorthorn			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	2,442	12,251	4.56	559	151	12,800	3.97	508	11	12,322	4.07	501
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	1,069	12,182	4.98	607	848	15,764	3.84	606	58	12,606	3.53	445
Arkansas	746	9,868	4.68	462	133	14,653	3.80	557	58	13,898	3.64	506
California	7,485	12,213	5.05	617	874	15,191	4.09	621	139	14,647	3.56	522
Colorado	248	10,912	4.71	514	511	13,862	4.19	580	---	---	---	---
Connecticut	397	11,000	4.90	539	243	13,531	3.98	538	20	10,272	3.61	371
Delaware	75	10,563	4.79	506	6	16,215	4.33	702	---	---	---	---
Florida	890	10,643	4.43	472	290	12,606	3.73	471	---	---	---	---
Georgia	1,504	10,156	4.74	482	330	13,996	3.77	528	---	---	---	---
Hawaii	---	---	---	---	---	---	---	---	---	---	---	---
Idaho	1,084	10,681	4.83	516	118	13,904	3.94	547	35	12,299	3.63	447
Illinois	1,013	9,661	4.87	470	1,326	12,845	4.08	524	201	11,850	3.60	426
Indiana	1,681	10,440	4.84	505	821	14,647	4.06	595	83	11,436	3.71	425
Iowa	2,336	10,270	4.87	500	2,809	13,417	4.09	549	411	11,296	3.68	416
Kansas	678	10,180	4.63	471	365	13,322	3.87	515	15	11,694	3.26	382
Kentucky	2,142	10,895	4.76	518	279	12,041	3.88	467	21	8,836	3.68	325
Louisiana	2,175	10,016	4.44	445	123	10,549	3.60	380	---	---	---	---
Maine	1,511	12,366	4.76	588	99	13,572	3.79	514	100	10,370	3.55	368
Maryland	589	8,815	4.84	426	296	13,193	4.00	528	41	9,908	3.70	366
Massachusetts	1,174	11,025	4.87	537	59	13,237	3.94	521	37	11,037	3.69	408
Michigan	1,811	10,922	4.97	543	375	13,020	4.00	520	79	13,084	3.61	473
Minnesota	2,500	10,241	4.87	499	1,436	13,634	4.01	547	534	12,597	3.66	460
Mississippi	1,829	10,387	4.52	470	7	10,821	4.00	433	---	---	---	---
Missouri	1,790	10,715	4.68	501	559	13,262	3.94	522	199	10,939	3.74	409
Montana	5	10,000	4.70	470	42	14,484	4.18	605	---	---	---	---
Nebraska	165	9,093	4.70	428	540	13,228	4.08	539	175	8,921	3.71	331
Nevada	441	12,833	4.72	605	1	16,180	2.83	458	---	---	---	---
New Hamphire	1,127	11,173	4.81	538	137	12,161	3.91	476	36	12,043	3.55	428
New Jersey	266	13,646	4.71	643	130	14,124	3.98	562	---	---	---	---
New Mexico	6	10,332	4.36	447	18	11,365	4.07	463	---	---	---	---
New York	4,825	10,956	4.89	536	1,644	14,112	4.01	566	46	11,879	3.72	441
North Carolina	2,111	11,271	4.60	519	263	12,900	3.90	503	---	---	---	---
North Dakota	93	8,944	4.72	423	109	14,307	3.99	570	1	14,430	3.96	572
Ohio	5,317	10,737	5.01	538	1,607	14,550	4.16	605	145	11,799	3.76	443
Oklahoma	725	10,350	4.70	486	394	12,871	3.99	514	231	12,960	3.53	458
Oregon	3,908	11,524	4.93	568	792	13,727	4.01	551	4	15,425	3.53	545
Pennsylvania	4,772	10,986	4.95	544	882	14,055	4.05	570	67	10,167	3.82	388
Puerto Rico	---	---	---	---	21	11,137	3.31	368	---	---	---	---
Rhode Island	4	10,782	4.27	459	2	11,460	3.78	432	---	---	---	---
South Carolina	4,616	11,599	4.74	550	53	10,732	3.65	393	---	---	---	---
South Dakota	124	9,644	4.99	481	352	12,584	4.07	512	100	9,869	3.56	352
Tennessee	4,305	11,121	4.62	514	429	13,996	4.03	564	1	13,480	3.76	507
Texas	3,954	11,016	4.64	512	1,090	14,637	3.96	579	32	13,632	3.62	493
Utah	717	11,50	4.83	553	121	13,319	4.09	545	---	---	---	---
Vermont	6,287	11,248	4.76	536	134	16,128	3.97	641	41	11,380	3.53	401
Virginia	875	11,453	4.67	535	128	13,754	3.87	532	8	13,043	3.51	458
Washington	3,224	12,341	4.98	614	233	14,878	4.06	604	45	15,352	3.39	520
West Virginia	297	11,367	4.49	510	11	12,279	3.90	477	---	---	---	---
Wisconsin	3,177	10,511	4.88	513	3,699	14,052	4.05	569	260	11,915	3.66	436
Wyoming	29	10,406	4.68	488	1	11,120	3.31	368	---	---	---	---
United States	88,539	11,122	4.82	536	24,891	13,854	4.02	557	3,234	11,833	3.64	431

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 3.--Average annual changes for 1971-80 and changes for 1979-80 for number of cows, milk yield, fat percentage, and fat yield by breed

Breed	Change: Average annual, 1971-80	Change: 1979-80
	Records (numbers)	
Ayrshire	+36	+336
Guernsey	-3,038	-229
Holstein	+59,852	+117,049
Jersey	+1,601	+5,375
Brown Swiss	+432	+678
Milking Shorthorn	+67	+218
	Milk (pounds)	
Ayrshire	+141	+232
Guernsey	+130	+173
Holstein	+229	+257
Jersey	+177	+235
Brown Swiss	+116	+178
Milking Shorthorn	+180	+336
	Fat (percent)	
Ayrshire	-.003	.000
Guernsey	-.006	-.020
Holstein	-.003	-.010
Jersey	-.019	-.020
Brown Swiss	-.001	-.010
Milking Shorthorn	-.002	+.010
	Fat (pounds)	
Ayrshire	+5	+9
Guernsey	+5	+7
Holstein	+8	+8
Jersey	+7	+9
Brown Swiss	+5	+9
Milking Shorthorn	+6	+13

Table 4.--Number of records and State and national standardized lactation averages for Ayrshire, Guernsey, and Holstein cows on official test, test, calving in 1980, and with missing sire identification[1]

State[2]	Ayrshire				Guernsey				Holstein			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	8	11,041	3.53	390	121	10,489	4.13	434	14,288	14,214	3.49	496
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	3	17,243	3.65	629	1,631	12,109	4.42	535	30,520	16,968	3.55	603
Arkansas	9	7,838	3.31	260	35	9,930	3.98	395	4,643	13,460	3.36	452
California	40	13,600	3.67	499	841	11,895	4.48	533	237,683	17,440	3.62	631
Colorado	11	12,114	3.45	418	17	11,313	4.36	493	10,323	14,993	3.56	534
Connecticut	23	11,031	3.93	433	40	10,860	4.35	472	5,829	15,944	3.62	577
Delaware	8	11,748	3.75	440	2	12,946	4.37	565	1,343	15,752	3.56	561
Florida	51	9,538	2.99	285	73	9,988	4.08	408	8,432	13,879	3.28	455
Georgia	18	11,774	3.57	421	72	10,965	4.32	474	18,761	13,854	3.52	488
Hawaii	---	---	---	---	1	16,769	3.88	651	2,430	14,468	3.02	437
Idaho	6	12,866	3.61	465	64	11,282	4.33	489	22,880	15,406	3.48	537
Illinois	48	10,523	3.83	403	173	9,838	4.45	437	24,364	14,402	3.75	540
Indiana	12	12,297	4.00	492	313	10,319	4.70	485	19,073	15,168	3.67	557
Iowa	138	10,975	3.84	422	441	9,663	4.67	451	28,083	14,155	3.67	519
Kansas	40	13,242	3.52	466	51	10,193	4.20	429	19,045	14,047	3.54	497
Kentucky	35	11,140	3.61	402	43	10,223	4.26	435	15,458	13,298	3.60	479
Louisiana	62	10,256	3.59	368	272	9,825	4.08	401	13,370	13,395	3.24	434
Maine	18	12,618	3.93	496	21	10,637	4.33	460	4,104	15,467	3.50	541
Maryland	53	12,104	3.74	453	71	9,735	4.59	446	13,579	14,612	3.68	537
Massachusetts	14	11,940	3.74	447	6	10,256	4.59	470	3,406	15,707	3.56	560
Michigan	17	11,268	3.74	421	248	10,770	4.58	493	55,475	15,413	3.62	557
Minnesota	125	11,715	3.80	445	739	9,752	4.60	449	73,170	14,534	3.62	526
Mississippi	43	9,717	3.60	350	92	9,618	4.10	394	12,541	13,413	3.46	465
Missouri	80	10,907	3.70	404	203	10,349	4.22	436	23,349	14,005	3.53	494
Montana	---	---	---	---	4	9,181	4.59	421	2,483	15,118	3.49	528
Nebraska	145	10,002	3.87	387	119	8,574	4.40	377	15,256	13,738	3.59	493
Nevada	---	---	---	---	---	---	---	---	5,023	16,568	3.25	538
New Hampshire	10	12,326	3.74	461	9	10,654	4.11	438	2,126	15,850	3.60	571
New Jersey	3	12,591	3.74	470	148	10,350	4.85	502	3,035	15,647	3.63	568
New Mexico	---	---	---	---	34	13,472	4.12	556	14,654	17,158	3.49	598
New York	229	12,128	3.94	477	168	10,507	4.54	477	45,576	15,783	3.60	568
North Carolina	13	12,070	3.84	464	142	10,297	4.46	459	30,754	15,237	3.46	528
North Dakota	1	7,158	3.72	266	13	10,084	4.20	423	4,483	13,258	3.42	453
Ohio	88	12,709	3.83	487	267	10,245	4.60	471	27,664	15,560	3.68	573
Oklahoma	16	10,956	3.61	395	25	9,203	4.26	392	11,259	14,528	3.58	520
Oregon	81	11,994	3.88	465	270	10,669	4.55	486	30,104	16,204	3.61	586
Pennsylvania	90	11,950	3.89	465	416	10,844	4.59	498	43,452	15,310	3.71	569
Puerto Rico	1	7,596	3.91	297	3	10,728	2.78	298	20,955	10,935	2.95	323
Rhode Island	4	10,434	3.59	374	1	9,114	4.61	420	331	13,921	3.66	510
South Carolina	1	12,142	4.03	489	136	11,090	4.43	491	12,278	14,627	3.58	523
South Dakota	15	10,996	3.57	393	8	8,718	4.14	361	7,199	13,930	3.64	508
Tennessee	61	11,535	3.72	429	294	9,880	4.28	423	32,347	14,477	3.60	521
Texas	42	12,377	3.96	490	82	10,637	4.26	453	39,698	14,899	3.45	515
Utah	27	11,440	4.11	471	5	11,646	3.98	463	17,914	16,197	3.41	553
Vermont	137	13,054	3.83	500	54	10,818	4.36	471	14,310	15,460	3.52	544
Virginia	45	11,663	3.70	432	224	9,524	4.30	410	27,069	14,846	3.52	523
Washington	31	13,646	3.87	529	201	11,964	4.37	523	46,095	16,593	3.51	582
West Virginia	12	11,247	3.75	421	28	8,839	4.21	372	4,233	13,993	3.52	492
Wisconsin	190	12,556	3.86	484	1,671	10,834	4.63	502	112,485	15,620	3.67	573
Wyoming	---	---	---	---	---	---	---	---	709	14,576	3.36	490
United States	2,104	11,704	3.79	444	9,892	10,790	4.48	484	1,233,641	15,496	3.58	554

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 5.--Number of records and State and national standardized lactation averages for Jersey, Brown Swiss, and Milking Shorthorn cows on official test, calving in 1980, and with missing sire identification[1]

State[2]	Jersey				Brown Swiss				Milking Shorthorn			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	536	9,360	4.44	416	261	14,006	3.58	502	---	---	---	---
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	481	11,911	4.99	594	87	15,658	3.91	612	3	15,099	3.64	549
Arkansas	89	10,059	4.45	448	82	13,144	3.55	467	16	11,240	3.19	358
California	7,041	11,327	4.92	557	420	15,342	3.97	609	7	16,622	3.85	639
Colorado	43	10,650	4.42	470	76	12,694	3.90	495	5	9,161	3.95	362
Connecticut	28	9,613	4.93	474	12	14,140	4.17	589	1	8,646	3.16	273
Delaware	6	13,036	4.38	571	---	---	---	---	---	---	---	---
Florida	209	9,808	4.17	409	193	11,959	3.62	433	---	---	---	---
Georgia	377	9,548	4.58	437	124	13,675	3.81	521	1	12,874	3.73	480
Hawaii	---	---	---	---	1	8,608	3.30	284	---	---	---	---
Idaho	476	9,647	4.68	451	93	13,707	3.97	544	3	13,075	3.66	478
Illinois	135	9,518	5.01	477	163	11,092	4.07	452	3	9,681	3.59	347
Indiana	267	9,458	4.72	447	112	12,570	4.00	503	2	12,819	3.33	427
Iowa	297	9,595	4.66	447	428	12,529	4.03	505	13	10,643	4.09	436
Kansas	98	8,778	4.58	402	113	12,602	3.78	476	2	14,163	3.04	431
Kentucky	164	10,064	4.73	476	121	11,059	3.99	441	1	15,550	3.15	490
Louisiana	1,222	9,103	4.33	394	130	11,364	3.60	409	7	10,318	3.42	353
Maine	105	11,112	4.68	520	3	14,645	3.85	564	5	11,217	3.85	432
Maryland	42	8,448	4.70	397	36	12,668	3.94	499	2	8,949	4.02	360
Massachusetts	61	10,203	4.72	481	12	12,802	3.95	505	1	14,719	3.67	540
Michigan	339	11,132	4.78	532	68	13,291	3.88	516	3	8,816	3.87	341
Minnesota	544	9,588	4.87	467	294	12,725	3.91	497	11	12,841	3.67	471
Mississippi	631	9,329	4.46	416	22	9,719	3.88	377	---	---	---	---
Missouri	205	10,085	4.53	457	270	12,042	3.88	467	22	12,974	3.75	486
Montana	6	14,381	4.44	638	6	14,392	3.51	505	---	---	---	---
Nebraska	19	9,707	4.77	463	73	12,330	3.89	479	5	13,230	3.40	450
Nevada	55	11,726	4.56	535	4	13,175	3.65	482	1	11,646	3.29	383
New Hampshire	195	9,934	4.75	472	17	11,131	3.87	430	3	14,622	3.45	505
New Jersey	26	11,159	4.65	519	22	13,618	4.06	553	---	---	---	---
New Mexico	7	13,779	3.89	536	13	15,604	3.35	523	---	---	---	---
New York	514	10,213	4.67	477	79	13,947	4.02	561	2	12,308	3.56	438
North Carolina	351	10,482	4.55	477	57	13,006	3.88	504	1	18,630	3.40	634
North Dakota	92	8,642	4.64	401	54	13,032	3.86	503	2	8,953	3.37	302
Ohio	454	10,390	5.04	523	120	12,152	4.09	498	7	9,846	4.30	423
Oklahoma	184	8,385	4.79	401	150	11,549	3.78	436	11	13,751	3.57	491
Oregon	2,718	10,027	4.89	490	201	12,917	4.08	527	9	11,507	3.97	457
Pennsylvania	429	10,391	4.91	511	61	13,519	3.95	534	9	11,038	3.84	424
Puerto Rico	8	7,697	3.79	292	208	11,101	3.17	352	1	13,680	2.29	313
Rhode Island	2	10,447	4.56	476	---	---	---	---	---	---	---	---
South Carolina	772	9,299	4.69	436	23	12,642	3.89	492	1	13,275	4.55	604
South Dakota	2	9,702	5.21	506	67	12,165	4.02	489	---	---	---	---
Tennessee	682	9,462	4.63	438	278	12,351	3.85	476	2	12,647	4.23	535
Texas	896	9,794	4.61	451	285	13,059	3.80	496	---	---	---	---
Utah	50	10,275	4.84	497	26	14,144	3.97	562	1	16,458	3.94	649
Vermont	1,302	10,108	4.71	476	39	14,666	3.80	558	4	12,946	3.69	477
Virginia	114	10,592	4.45	472	96	12,499	3.80	475	1	11,890	3.92	466
Washington	747	11,452	5.01	573	73	13,740	4.19	575	6	16,077	4.07	654
West Virginia	45	10,478	4.58	480	6	11,786	4.13	486	---	---	---	---
Wisconsin	743	9,665	4.79	463	638	13,511	3.96	535	30	12,321	3.58	441
Wyoming	---	---	---	---	---	---	---	---	---	---	---	---
United States	23,809	10,347	4.78	495	5,717	12,915	3.87	500	204	12,271	3.69	452

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[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

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Dairy Herd Improvement Letter

NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM PARTICIPATION REPORT-- STATE ACTIVITIES AS OF JANUARY 1, 1983

By H. D. Norman, E. F. Myers, and F. N. Dickinson[1]

Participation in the National Cooperative Dairy Herd Improvement Program (NCDHIP) increased slightly this year, probably as a result of tighter economic conditions in the dairy industry. As of January 1, 1983, NCDHIP included 43.3 percent of U.S. dairy cows as compared with 43.1 percent last year. The program now enrolls 4,838,184 cows and 14,437 does.

This report is prepared annually to summarize State activities in many segments of NCDHIP. Information is provided by either the State Extension Dairy Specialists advising on NCDHIP in their respective States or personnel from the nine dairy records processing centers that compute Dairy Herd Improvement Association (DHIA) records for the States.

All information in this report represents State participation as of January 1, 1983, unless otherwise indicated. Puerto Rico and the Virgin Islands are listed in the tables under the heading State; this results in a total of 52 NCDHIP States. A Guide to Tables based on highlights is included.

Table 1 shows 51 State DHIA's in existence on January 1, 1983. Mississippi dairymen formed a State DHIA organization for the first time in 1982. Only Alaska does not have a State DHIA. Forty-six States were members of National DHIA; the Alabama, Florida, and Tennessee DHIA's joined National DHIA in 1982. The number of testing associations decreased by 31 to 1,053, but the number of testing supervisors increased by 200 to 3,116.

Table 2 ranks the States by cow population ranges and percentage of cows enrolled in any NCDHIP plan. The dairy cow population in each State as reported by the Statistical Reporting Service, U.S. Department of Agriculture, is presented, and these figures are used as the basis for determining each State's percentage of participation in the various plans throughout this report. The proportion of U.S. dairy cows enrolled in NCDHIP is the highest in history at 43.3 percent. California ranks highest among the major dairy States, with 62.1 percent of cows enrolled. Of the other States with large cow populations, Washington, Pennsylvania, Wisconsin, Michigan, and New York have nearly 50 percent of cows enrolled. Almost half of the States showed an increase in participation; 16 States now have over 50 percent of cows enrolled.

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[1] Research geneticist (animal), statistical assistant, and Chief, respectively, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

Table 3 summarizes participation in official and nonofficial NCDHIP plans by State. The U.S. dairy cow inventory of 11,175,000 cows includes 109,000 from Puerto Rico and the Virgin Islands. Over 4.8 million U.S. dairy cows from 66,202 herds were enrolled in NCDHIP. Participation of U.S. dairy cows in official plans is 30.7 percent, an increase from 30.5 percent last year; participation in nonofficial plans is 12.6 percent, a decrease from 12.7 percent last year.

Table 4 shows how enrollment in NCDHIP changed during the past year. Out of 52 States, 27 increased cow enrollment, 3 States (California, Wisconsin, and Minnesota) by more than 10,000 cows. The greatest increases in the number of herds enrolled came from Wisconsin and Minnesota. There was an increase in all testing plans of 329 herds and 48,004 cows. Twenty-nine percent of the increase in the number of herds enrolled was reflected in official plans. California showed the largest increase in the number of cows enrolled and Minnesota the largest increase in the number of herds enrolled. For nonofficial plans, Wisconsin and Pennsylvania showed the largest increases in numbers of cows enrolled and Wisconsin the largest increase in the number of herds enrolled. This was the first time since 1975 that there was a decrease in the number of cows on nonofficial testing. The large decrease in the number of cows enrolled in nonofficial plans in California may have been a result of dairymen's switching from nonofficial to official plans.

Enrollment in Official DHI continued to decrease, with a decline of 818 herds and 29,053 cows (table 5). This decrease in the presence of an expanding program indicates that dairymen are using alternative plans suitable to their individual needs; still, Official DHI is the plan used by most dairymen participating in NCDHIP, with an enrollment of 30,829 herds and 2,481,408 cows.

Table 6 shows the participation in the Official DHI AM-PM plan, which requires a monitoring device to record time of milking. Enrollment in Official DHI AM-PM increased from 1,242 herds a year ago to 1,625 herds in January 1983. The corresponding number of cows enrolled increased from 100,141 to 137,705. Minnesota and California are the leading States in participation in this plan.

Table 7 shows participation in Official DHI with Alternate AM-PM Component Sampling. Herd enrollment decreased from 3,265 to 3,189 and cow enrollment from 374,955 to 362,197. The decrease of 12,758 in the number of cows enrolled contrasts sharply with the increase of 97,981 last year.

Participation in the breed association-sponsored Dairy Herd Improvement Registry (DHIR) plan, the plan with the greatest growth this year, showed an increase of 602 herds and 53,322 cows more than last year's enrollment (table 8). This is an increase of 13.0 percent in the number of herds and 14.1 percent in the number of cows. Participation is at an alltime high with 5,248 herds and 431,682 cows now enrolled in this plan. The largest increase in herds enrolled was in Wisconsin and the largest increases in cows were in California and Wisconsin.

Table 9 shows participation in Official DHIR AM-PM with Monitoring Device. Five herds in four States are enrolled in this plan. Enrollment increased by 3 herds and 234 cows this year. Table 10 gives enrollment in Official DHIR with Alternate AM-PM Component Sampling. Participation in this official plan showed enrollment of 133 herds and 17,833 cows, a decrease of 779 cows from last year.

There are 15 nonofficial plans (9 unsupervised and 6 supervised) in NCDHIP, with a total enrollment of 25,173 herds and 1,406,677 cows. Participation in the 9 unsupervised plans (tables 11-19) accounts for 9.8 percent of all U.S. dairy cows, with 20,685 herds and 1,086,798 cows. Seven of these unsupervised plans (tables 11-17) are Owner-Sampler plans, with an enrollment of 20,314 herds and 983,503 cows, accounting for 8.8 percent of all U.S. dairy cows. The most significant change occurred in the Owner-Sampler AM-PM plan (table 12), with the number of herds enrolled increasing by 355 to 3,420 and the number of cows by 17,248 to 174,850. Minnesota showed the greatest change with 964 herds and 43,175 cows now enrolled, an increase of 192 herds and 7,939 cows.

Tables 18 and 19 show the enrollment for the Commercial and the Commercial AM-PM plans. These supervised plans now enroll 371 herds and 103,295 cows.

Enrollment in the Supervised Sampling, the Supervised AM-PM, the Supervised Milk-Only-Records, and the Supervised AM-PM Milk-Only-Records plans is shown in tables 20-23. Participation in these 4 nonofficial supervised plans accounts for 2.8 percent of all U.S. dairy cows, with 4,353 herds and 308,295 cows. Enrollment in the Supervised AM-PM plan is 4,051 herds and 241,989 cows, an increase of 86 herds and 4,224 cows, accounting for 2.2 percent of all U.S. dairy cows. Most of the increase was from Pennsylvania and Iowa.

Table 24 shows enrollment in the Basic Production and Management plan. Current enrollment in this unsupervised plan is 102 herds and 8,587 cows, a decrease of 25 herds and 2,442 cows. All other nonofficial plans had increased enrollment for the numbers of cows (table 25).

Table 26 contains information on State enrollment of dairy goats in NCDHIP recordkeeping plans. The enrollment of 1,580 herds and 14,437 does is lower than last year's enrollment by 36 herds and 12 does. The largest decreases in enrollment of does were in Missouri and Oregon; the largest increases were in California and Michigan.

Participation in NCDHIP services has increased (table 27). On January 1, 1983, 25,934 cow herds and 2,276,387 cows were participating in mastitis screening programs. California had the greatest increase since last year, with an additional 49,682 cows reported. Increased participation in both protein and solids-not-fat (SNF) testing was significant. Protein percentage of milk was tested for 1,996,976 cows and SNF percentage for 329,314 cows, an increase of 826,339 cows for protein testing and 73,877 for SNF testing. Pennsylvania and Ohio showed increases of 331,918 and 124,013 cows over last year's participation in protein testing, and California increased participation in SNF testing by 78,973 cows. Four of the dairy record processing centers--California, New York, North Carolina, and Utah--have on-line capability for computer service available to both DHIA management and dairymen.

Participation in the Verified Identification Program (VIP), a grade identification program sponsored by NDHIA, is shown in table 28. From 1976 through January 1, 1983, 80,712 animals have received VIP certificates, with 18,015 animals certified in 1982, 1,340 more than in 1981.

Table 29 summarizes the trends in official NCDHIP recordkeeping plans since the beginning of NCDHIP in 1906. In 1983, the number and percentage of cows enrolled in NCDHIP increased. Milk and fat yield for cows in official plans averaged 15,280 pounds of milk and 564 pounds of fat. Fat percentage increased to 3.69. Table 30 summarizes the trends in nonofficial NCDHIP recordkeeping plans since 1956. Milk and fat yield for cows enrolled in nonofficial plans averaged 14,213 pounds of milk and 534 pounds of fat. Fat percentage increased to 3.76. Enrollment and average production in official and nonofficial plans reached new alltime highs in 1983.

Table 31 is a list of Extension Dairy Specialists who advise on NCDHIP.

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Highlight areas | Page

Summaries of official and nonofficial plans:

Changes in cows from last year's report - - - 9
Cows for all plans: Official and nonofficial - - - 8
Goats for all plans: Official and nonofficial - - - 23
Members, associations, and supervisors - - - 6
Percentage of cows in NCDHIP by range - - - 7
Summary of nonofficial records by years - - - 27
Summary of official records by years - - - 26

Cows enrolled in official plans:

DHI - - - 10
DHI AM-PM Component Sampling - - - 12
DHI AM-PM with Monitoring Device - - - 11
DHIR - - - 13
DHIR AM-PM Component Sampling - - - 14
DHIR AM-PM with Monitoring Device - - - 14

Cows enrolled in nonofficial plans:

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Owner-Sampler AM-PM - - - 16
Owner-Sampler AM-PM Milk-Only-Records - - - 18
Owner-Sampler AM-PM with Average (Breed or Plant) Components - - - 18
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Owner-Sampler with Average (Breed or Plant) Components - - - 18
Supervised AM-PM - - - 20
Supervised AM-PM Milk-Only-Records - - - 22
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Other areas of interest:

Extension Dairy Specialists advising on NCDHIP - - - 28
Types of services for cows and goats - - - 24
Verified Identification Program - - - 25

TABLE 1.--STATE DAIRY HERD IMPROVEMENT ASSOCIATIONS, MEMBERSHIP IN NATIONAL DAIRY HERD IMPROVEMENT ASSOCIATION, INC., ASSOCIATIONS, AND SUPERVISORS IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM, JANUARY 1, 1983

STATE 1/	STATE DHIA	MEMBER OF NDHIA, INC.	ASSOCI-ATIONS	SUPER-VISORS	STATE 1/	STATE DHIA	MEMBER OF NDHIA, INC.	ASSOCI-ATIONS	SUPER-VISORS
			NUMBER	NUMBER				NUMBER	NUMBER
ALABAMA----------	YES	YES	17	25	NEW HAMPSHIRE----	YES	YES	8	15
ALASKA-----------	NO	NO	1	3	NEW JERSEY-------	YES	YES	5	20
ARIZONA 2/-------	YES	YES	1	17	NEW MEXICO-------	YES	YES	4	9
ARKANSAS---------	YES	YES	34	41	NEW YORK --------	YES	YES	48	212
CALIFORNIA-------	YES	YES	25	200	NORTH CAROLINA---	YES	YES	21	47
COLORADO---------	YES	YES	6	27	NORTH DAKOTA-----	YES	YES	13	20
CONNECTICUT------	YES	YES	6	25	OHIO-------------	YES	YES	1	115
DELAWARE 2/------	YES	YES	1	4	OKLAHOMA---------	YES	YES	19	30
FLORIDA----------	YES	YES	10	22	OREGON-----------	YES	YES	10	30
GEORGIA----------	YES	YES	29	36	PENNSYLVANIA-----	YES	YES	60	221
HAWAII 3/--------	YES	NO	1	1	PUERTO RICO 2/---	YES	YES	1	24
IDAHO------------	YES	YES	26	45	RHODE ISLAND-----	YES	NO	3	3
ILLINOIS---------	YES	YES	44	92	SOUTH CAROLINA---	YES	YES	11	20
INDIANA----------	YES	YES	46	93	SOUTH DAKOTA-----	YES	YES	17	20
IOWA-------------	YES	YES	53	122	TENNESSEE--------	YES	YES	43	54
KANSAS-----------	YES	YES	45	60	TEXAS------------	YES	NO	34	78
KENTUCKY---------	YES	YES	38	68	UTAH-------------	YES	YES	16	22
LOUISIANA--------	YES	YES	15	29	VERMONT 4/-------	YES	YES	23	75
MAINE------------	YES	YES	12	46	VIRGIN ISLANDS 2/	YES	YES	1	1
MARYLAND---------	YES	YES	11	36	VIRGINIA---------	YES	YES	42	82
MASSACHUSETTS----	YES	YES	6	22	WASHINGTON-------	YES	YES	16	66
MICHIGAN---------	YES	YES	1	91	WEST VIRGINIA----	YES	YES	8	18
MINNESOTA--------	YES	YES	74	214	WISCONSIN--------	YES	YES	32	375
MISSISSIPPI------	YES	NO	25	34	WYOMING 4/-------	YES	NO	8	8
MISSOURI---------	YES	YES	41	80					
MONTANA 4/-------	YES	YES	7	9	NATIONAL				
NEBRASKA---------	YES	YES	30	48	COOPERATIVE				
NEVADA-----------	YES	YES	4	6	DHI PROGRAM----	51	46	1,053	3,116

1/ INCLUDES PUERTC RICO AND VIRGIN ISLANDS.
2/ DATA FOR JANUARY 1, 1982; NCNE REPORTED FOR JANUARY 1, 1983.
3/ DATA FOR JANUARY 1, 1978; NCNE REPORTED FOR JANUARY 1, 1983.
4/ DATA FOR JANUARY 1, 1981; NCNE REPORTED FOR JANUARY 1, 1983.

TABLE 2.--PERCENTAGE OF COWS ENROLLED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM BY STATE COW POPULATION RANGE, JANUARY 1, 1983

STATE 1/ BY COW POPULATION RANGE	COW POPULATION 2/	STATE RANKING 3/	COWS ENROLLED
	THOUSANDS		PCT
OVER 500,000			
CALIFORNIA	940	6	62.1
PENNSYLVANIA	738	23	46.2
WISCONSIN	1,830	24	46.0
NEW YORK	935	26	45.7
MINNESOTA	890	29	39.9
200,001-500,000			
WASHINGTON	213	18	49.1
MICHIGAN	400	25	45.8
OHIO	393	31	38.5
ILLINOIS	230	34	36.9
INDIANA	204	36	34.8
IOWA	386	37	34.6
TENNESSEE	217	42	32.2
TEXAS	335	44	30.8
MISSOURI	252	45	30.0
KENTUCKY	243	50	18.9
100,001-200,000			
NORTH CAROLINA	131	8	58.9
VIRGINIA	172	10	55.9
MARYLAND	120	16	50.0
GEORGIA	130	21	46.4
KANSAS	127	22	46.3
VERMONT	194	28	40.7
IDAHO	175	35	36.4
FLORIDA	190	38	34.4
NEBRASKA	121	40	33.5
LOUISIANA	102	41	32.4
PUERTO RICO	108	43	31.3
OKLAHOMA	110	46	24.5
SOUTH DAKOTA	165	48	22.5
50,001-100,000			
ARIZONA	82	2	72.1
NEW MEXICO	58	4	68.7
UTAH	84	9	56.6
OREGON	100	12	55.2
MAINE	58	15	51.0
COLORADO	75	17	49.9
ALABAMA	55	19	48.9
MISSISSIPPI	96	39	33.7
ARKANSAS	84	47	23.6
NORTH DAKOTA	94	52	14.1
50,000 OR UNDER			
NEVADA	16	1	75.3
SOUTH CAROLINA	48	3	69.3
HAWAII	12	5	66.4
CONNECTICUT	50	7	59.2
VIRGIN ISLANDS	1	11	55.6
NEW HAMPSHIRE	31	13	54.0
DELAWARE	10	14	53.1
NEW JERSEY	40	20	46.7
MASSACHUSETTS	48	27	43.0
MONTANA	29	30	39.2
RHODE ISLAND	4	32	38.3
WEST VIRGINIA	36	33	38.1
WYOMING	12	49	21.9
ALASKA	1	51	14.2
NCDHIP TOTAL	11,175	--	----

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

3/ HIGHEST PERCENTAGE OF COWS ENROLLED EQUALS 1.

TABLE 3.--ENROLLMENT BY CATEGORY OF PLAN AND STATE FOR DAIRY COWS, JANUARY 1, 1983

STATE 1/	ALL MILK COWS 2/	OFFICIAL PLANS		COWS IN OFFICIAL PLANS	NONOFFICIAL PLANS		COWS IN NONOFFICIAL PLANS	ALL TESTING PLANS		COWS IN ALL PLANS
		HERDS	COWS		HERDS	COWS		HERDS	COWS	
	THOUSANDS	NUMBER	NUMBER	PCT	NUMBER	NUMBER	PCT	NUMBER	NUMBER	PCT
ALABAMA----------	55	207	25,683	46.7	11	1,239	2.3	218	26,922	48.9
ALASKA-----------	1	1	68	6.8	1	74	7.4	2	142	14.2
ARIZONA----------	82	135	56,492	68.9	9	2,642	3.2	144	59,134	72.1
ARKANSAS---------	84	259	16,444	19.6	46	3,406	4.1	305	19,850	23.6
CALIFORNIA-------	940	1,327	507,892	54.0	177	75,675	8.1	1,504	583,567	62.1
COLORADO---------	75	246	33,513	44.7	22	3,894	5.2	268	37,407	49.9
CONNECTICUT------	50	309	25,299	50.6	46	4,293	8.6	355	29,592	59.2
DELAWARE---------	10	51	4,826	48.3	5	485	4.8	56	5,311	53.1
FLORIDA----------	190	70	21,436	11.3	112	44,019	23.2	182	65,455	34.4
GEORGIA----------	130	333	42,113	32.4	113	18,253	14.0	446	60,366	46.4
HAWAII-----------	12	7	3,908	32.6	6	4,060	33.8	13	7,968	66.4
IDAHO------------	175	536	57,279	32.7	41	6,360	3.6	577	63,639	36.4
ILLINOIS---------	230	1,248	73,967	32.2	219	10,869	4.7	1,467	84,836	36.9
INDIANA----------	204	936	56,884	27.9	253	14,071	6.9	1,189	70,955	34.8
IOWA-------------	386	1,448	73,935	19.2	1,307	59,721	15.5	2,755	133,656	34.6
KANSAS-----------	127	781	53,469	42.1	108	5,353	4.2	889	58,822	46.3
KENTUCKY---------	243	573	37,838	15.6	97	8,208	3.4	670	46,046	18.9
LOUISIANA--------	102	305	30,920	30.3	24	2,082	2.0	329	33,002	32.4
MAINE------------	58	483	25,319	43.7	54	4,236	7.3	537	29,555	51.0
MARYLAND---------	120	646	56,861	47.4	50	3,082	2.6	696	59,943	50.0
MASSACHUSETTS----	48	336	19,468	40.6	24	1,189	2.5	360	20,657	43.0
MICHIGAN---------	400	1,602	129,438	32.4	864	53,718	13.4	2,466	183,156	45.8
MINNESOTA--------	890	4,741	243,944	27.4	2,636	110,823	12.5	7,377	354,767	39.9
MISSISSIPPI------	96	308	29,852	31.1	23	2,477	2.6	331	32,329	33.7
MISSOURI---------	252	955	64,192	25.5	206	11,389	4.5	1,161	75,581	30.0
MONTANA----------	29	114	9,777	33.7	10	1,602	5.5	124	11,379	39.2
NEBRASKA---------	121	543	36,121	29.9	70	4,393	3.6	613	40,514	33.5
NEVADA-----------	16	38	11,611	72.6	6	433	2.7	44	12,044	75.3
NEW HAMPSHIRE----	31	237	14,239	45.9	39	2,497	8.1	276	16,736	54.0
NEW JERSEY-------	40	197	15,245	38.1	54	3,433	8.6	251	18,678	46.7
NEW MEXICO-------	58	66	35,274	60.8	12	4,586	7.9	78	39,860	68.7
NEW YORK---------	935	3,057	220,398	23.6	3,329	207,022	22.1	6,386	427,420	45.7
NORTH CAROLINA---	131	631	68,404	52.2	75	8,716	6.7	706	77,120	58.9
NORTH DAKOTA-----	94	175	11,132	11.8	31	2,103	2.2	206	13,235	14.1
OHIO-------------	393	1,716	109,176	27.8	794	42,046	10.7	2,510	151,222	38.5
OKLAHOMA---------	110	315	24,797	22.5	31	2,206	2.0	346	27,003	24.5
OREGON-----------	100	408	48,188	48.2	64	6,996	7.0	472	55,184	55.2
PENNSYLVANIA-----	738	3,978	231,024	31.3	2,219	109,745	14.9	6,197	340,769	46.2
PUERTO RICO------	108	188	33,854	31.3	0	0	0.0	188	33,854	31.3
RHODE ISLAND-----	4	25	1,455	38.3	0	0	0.0	25	1,455	38.3
SOUTH CAROLINA---	48	222	31,865	66.4	15	1,406	2.9	237	33,271	69.3
SOUTH DAKOTA-----	165	282	17,960	10.9	350	19,107	11.6	632	37,067	22.5
TENNESSEE--------	217	747	67,132	30.9	39	2,835	1.3	786	69,967	32.2
TEXAS------------	335	690	94,359	28.2	63	8,848	2.6	753	103,207	30.8
UTAH-------------	84	380	44,058	52.4	28	3,488	4.2	408	47,546	56.6
VERMONT----------	194	1,050	63,055	32.5	300	15,910	8.2	1,350	78,965	40.7
VIRGIN ISLANDS---	1	0	0	0.0	4	556	55.6	4	556	55.6
VIRGINIA---------	172	962	93,460	54.3	44	2,646	1.5	1,006	96,106	55.9
WASHINGTON-------	213	661	92,392	43.4	75	12,172	5.7	736	104,564	49.1
WEST VIRGINIA----	36	171	13,386	37.2	8	327	0.9	179	13,713	38.1
WISCONSIN--------	1,830	6,305	349,523	19.1	11,058	491,945	26.9	17,363	841,468	46.0
WYOMING----------	12	28	2,582	21.5	1	41	0.3	29	2,623	21.9
NCDHIP TOTAL-----	11,175	41,029	3,431,507	30.7	25,173	1,406,677	12.6	66,202	4,838,184	43.3

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983, EXCEPT DATA FOR PUERTO RICO AND VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 4.--CHANGES IN ENROLLMENT BY CATEGORY OF PLAN AND STATE FOR DAIRY COWS, 1982-83

STATE 1/	OFFICIAL PLANS CHANGE IN HERDS	OFFICIAL PLANS CHANGE IN COWS	NONOFFICIAL PLANS CHANGE IN HERDS	NONOFFICIAL PLANS CHANGE IN COWS	ALL TESTING PLANS CHANGE IN HERDS	ALL TESTING PLANS CHANGE IN COWS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ALABAMA----------	-11	-742	-1	41	-12	-701
ALASKA-----------	0	6	-1	-95	-1	-89
ARIZONA----------	8	5,538	3	1,247	11	6,785
ARKANSAS---------	56	3,057	1	-918	57	2,139
CALIFORNIA-------	20	22,127	-16	-8,679	4	13,448
COLORADO---------	-10	-77	-1	-198	-11	-275
CONNECTICUT------	8	1,301	0	353	8	1,654
DELAWARE---------	2	392	1	80	3	472
FLORIDA----------	-7	-459	-6	-5,488	-13	-5,947
GEORGIA----------	-8	210	-9	-2,476	-17	-2,266
HAWAII-----------	-1	-106	0	257	-1	151
IDAHO------------	-10	465	-7	-972	-17	-507
ILLINOIS---------	-32	-1,243	-28	-1,275	-60	-2,518
INDIANA----------	-33	-2,775	-5	125	-38	-2,650
IOWA-------------	-35	-2,745	59	1,168	24	-1,577
KANSAS-----------	-4	-523	-2	-178	-6	-701
KENTUCKY---------	13	1,418	3	823	16	2,241
LOUISIANA--------	-17	-978	-16	-2,275	-33	-3,253
MAINE------------	21	1,171	5	181	26	1,352
MARYLAND---------	-15	-728	-5	-439	-20	-1,167
MASSACHUSETTS----	-10	-460	1	53	-9	-407
MICHIGAN---------	-5	-708	-22	-2,076	-27	-2,784
MINNESOTA--------	187	7,306	59	2,749	246	10,055
MISSISSIPPI------	5	315	-3	141	2	456
MISSOURI---------	44	2,903	6	745	50	3,648
MONTANA----------	1	203	-1	-85	0	118
NEBRASKA---------	28	198	0	-54	28	144
NEVADA-----------	-1	10	-1	-278	-2	-268
NEW HAMPSHIRE----	8	585	0	106	8	691
NEW JERSEY-------	1	353	10	621	11	974
NEW MEXICO-------	2	2,742	4	3,191	6	5,933
NEW YORK---------	-44	3,213	-71	-126	-115	3,087
NORTH CAROLINA---	-25	-3,599	20	3,360	-5	-239
NORTH DAKOTA-----	-3	-148	-9	-312	-12	-460
OHIO-------------	8	1,378	36	3,945	44	5,323
OKLAHOMA---------	-31	-903	-8	-367	-39	-1,270
OREGON-----------	-3	-627	-27	-4,984	-30	-5,611
PENNSYLVANIA-----	21	2,924	76	6,460	97	9,384
PUERTO RICO------	-4	-1,735	0	0	-4	-1,735
RHODE ISLAND-----	0	50	0	0	0	50
SOUTH CAROLINA---	-9	203	-4	-763	-13	-560
SOUTH DAKOTA-----	-14	-977	0	532	-14	-445
TENNESSEE--------	7	1,441	5	-412	12	1,029
TEXAS------------	-7	5,267	13	1,560	6	6,827
UTAH-------------	4	1,123	-1	-58	3	1,065
VERMONT----------	-40	1,064	1	-357	-39	707
VIRGIN ISLANDS---	0	0	0	28	0	28
VIRGINIA---------	-19	508	3	318	-16	826
WASHINGTON-------	-26	-3,063	-26	-3,268	-52	-6,331
WEST VIRGINIA----	-13	-1,076	-2	-100	-15	-1,176
WISCONSIN--------	89	4,765	200	7,722	289	12,487
WYOMING----------	0	-34	-1	-99	-1	-133
NCDRIP TOTAL-----	96	48,530	233	-526	329	48,004

1/ INCLUDES PUERTO RICO AND VIRGIN ISLANDS.

TABLE 5.--ENROLLMENT IN THE OFFICIAL DAIRY HERD IMPROVEMENT PLAN, JANUARY 1, 1983

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	32	4	3,034	-142	55	5.5
ARIZONA----------	99	7	46,896	5,583	82	57.2
ARKANSAS---------	222	46	14,278	2,528	84	17.0
CALIFORNIA-------	1,042	-20	393,990	-4,081	940	41.9
COLORADO---------	191	-14	26,957	-583	75	35.9
CONNECTICUT------	253	3	21,408	969	50	42.8
DELAWARE---------	37	-2	3,920	82	10	39.2
FLORIDA----------	9	-2	2,678	-1,245	190	1.4
GEORGIA----------	122	-23	14,834	-449	130	11.4
HAWAII-----------	7	-1	3,908	-106	12	32.6
IDAHO------------	485	-15	51,482	-33	175	29.4
ILLINOIS---------	799	-57	46,202	-2,463	230	20.1
INDIANA----------	740	-46	44,996	-3,301	204	22.1
IOWA-------------	1,140	-68	58,325	-4,045	386	15.1
KANSAS-----------	663	-17	44,403	-1,720	127	35.0
KENTUCKY---------	431	-18	28,441	-1,020	243	11.7
LOUISIANA--------	29	-24	2,957	-1,996	102	2.9
MAINE------------	408	15	21,115	738	58	36.4
MARYLAND---------	563	-34	47,441	-2,197	120	39.5
MASSACHUSETTS----	275	-18	16,002	-827	48	33.3
MICHIGAN---------	1,418	-45	115,534	-3,627	400	28.9
MINNESOTA--------	3,540	-58	179,545	-4,866	890	20.2
MISSISSIPPI------	22	5	2,036	517	96	2.1
MISSOURI---------	676	13	44,785	1,562	252	17.8
MONTANA----------	95	0	8,431	81	29	29.1
NEBRASKA---------	439	8	27,856	-1,269	121	23.0
NEVADA-----------	27	4	9,391	1,513	16	58.7
NEW HAMPSHIRE----	199	7	11,247	601	31	36.3
NEW JERSEY-------	156	-6	11,869	-227	40	29.7
NEW MEXICO-------	52	4	27,844	3,323	58	48.0
NEW YORK---------	2,611	-107	190,205	-1,773	935	20.3
NORTH CAROLINA---	122	14	13,022	929	131	9.9
NORTH DAKOTA-----	117	-11	6,973	-884	94	7.4
OHIO-------------	1,269	-106	81,252	-5,450	393	20.7
OKLAHOMA---------	214	-33	16,573	-1,425	110	15.1
OREGON-----------	325	-6	39,549	-1,628	100	39.5
PENNSYLVANIA-----	3,778	41	218,595	4,583	738	29.6
PUERTO RICO------	1	1	50	50	108	0.0
RHODE ISLAND-----	19	1	1,161	82	4	30.6
SOUTH CAROLINA---	52	-1	7,317	145	48	15.2
SOUTH DAKOTA-----	123	-39	8,064	-2,819	165	4.9
TENNESSEE--------	84	0	7,885	-117	217	3.6
TEXAS------------	158	7	23,991	4,366	335	7.2
UTAH-------------	335	-1	37,786	1,466	84	45.0
VERMONT----------	897	-55	54,908	260	194	28.3
VIRGINIA---------	758	-39	69,923	-1,035	172	40.7
WASHINGTON-------	528	-32	76,593	-2,903	213	36.0
WEST VIRGINIA----	153	-13	11,434	-1,227	36	31.8
WISCONSIN--------	5,091	-87	282,103	-4,975	1,830	15.4
WYOMING----------	23	0	2,219	2	12	18.5
NCDHIP TOTAL-----	30,829	-818	2,481,408	-29,053	11,175	22.2

1/ INCLUDES PUERTO RICO.

2/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983, EXCEPT DATA FOR PUERTO RICO, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 6.--ENROLLMENT IN THE OFFICIAL DHI AM-PM WITH MONITORING DEVICE PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARKANSAS---------	4	0	228	-59	84	0.3
CALIFORNIA-------	57	18	37,496	13,494	940	4.0
IDAHO------------	0	-1	0	-149	175	0.0
ILLINOIS---------	243	24	15,516	1,513	230	6.7
INDIANA----------	1	0	103	45	204	0.1
IOWA-------------	60	8	3,406	549	386	0.9
KANSAS-----------	24	4	2,213	483	127	1.7
LOUISIANA--------	6	3	996	590	102	1.0
MARYLAND---------	2	1	351	192	120	0.3
MICHIGAN---------	12	11	808	740	400	0.2
MINNESOTA--------	874	226	46,686	11,392	890	5.2
MISSOURI---------	34	21	2,277	1,190	252	0.9
NEBRASKA---------	51	14	4,273	1,264	121	3.5
NEVADA-----------	1	-3	316	-1,522	16	2.0
NEW HAMPSHIRE----	2	0	468	-14	31	1.5
NEW MEXICO-------	5	5	4,095	4,095	58	7.1
NORTH DAKOTA-----	23	0	2,012	-42	94	2.1
OHIO-------------	82	61	6,364	4,201	393	1.6
OKLAHOMA---------	9	-3	1,031	-122	110	0.9
OREGON-----------	2	2	289	289	100	0.3
PENNSYLVANIA-----	15	-16	866	-1,504	738	0.1
SOUTH DAKOTA-----	116	7	7,664	828	165	4.6
TEXAS------------	2	1	247	111	335	0.1
NCDHIP TOTAL-----	1,625	383	137,705	37,564	11,175	1.2

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 7.--ENROLLMENT IN THE OFFICIAL DHI WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1983

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	152	-21	19,833	-1,179	55	36.1
FLORIDA----------	57	-3	15,999	1,217	190	8.4
GEORGIA----------	168	8	21,099	-132	130	16.2
IDAHO------------	13	-4	1,528	-725	175	0.9
ILLINOIS---------	23	-3	1,055	-294	230	0.5
INDIANA----------	29	1	2,282	-120	204	1.1
IOWA-------------	19	5	782	265	386	0.2
KANSAS-----------	19	9	1,935	547	127	1.5
KENTUCKY---------	60	17	4,173	1,515	243	1.7
LOUISIANA--------	243	5	24,205	578	102	23.7
MINNESOTA--------	13	5	1,270	317	890	0.1
MISSISSIPPI------	255	-4	24,134	-497	96	25.1
MISSOURI---------	142	-3	10,701	-597	252	4.2
NEW MEXICO-------	0	-8	0	-4,413	58	0.0
NEW YORK---------	5	-4	807	-340	935	0.1
NORTH CAROLINA---	466	-39	50,252	-4,972	131	38.4
NORTH DAKOTA-----	19	3	1,196	391	94	1.3
OKLAHOMA---------	29	-3	2,197	99	110	2.0
PUERTO RICO------	187	-5	33,804	-1,785	108	31.3
SOUTH CAROLINA---	127	-8	17,495	-454	48	36.4
SOUTH DAKOTA-----	14	14	818	818	165	0.5
TENNESSEE--------	589	-6	52,501	806	217	24.2
TEXAS------------	434	-36	59,349	-1,573	335	17.7
UTAH-------------	0	-4	0	-1,269	84	0.0
VIRGINIA---------	126	11	14,782	801	172	8.6
WASHINGTON-------	0	-3	0	-1,762	213	0.0
NCDHIP TOTAL-----	3,189	-76	362,197	-12,758	11,175	3.2

1/ INCLUDES PUERTO RICO.

2/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983, EXCEPT DATA FOR PUERTO RICO, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 8.--ENROLLMENT IN THE OFFICIAL DAIRY HERD IMPROVEMENT REGISTRY PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	13	6	1,254	538	55	2.3
ALASKA	1	0	68	6	1	6.8
ARIZONA	36	1	9,596	-45	82	11.7
ARKANSAS	33	10	1,938	588	84	2.3
CALIFORNIA	228	22	76,406	12,714	940	8.1
COLORADO	55	4	6,556	506	75	8.7
CONNECTICUT	56	5	3,891	332	50	7.8
DELAWARE	14	4	906	310	10	9.1
GEORGIA	36	6	5,015	784	130	3.9
IDAHO	36	8	4,134	1,237	175	2.4
ILLINOIS	176	3	10,846	50	230	4.7
INDIANA	166	12	9,503	601	204	4.7
IOWA	225	18	11,164	387	386	2.9
KANSAS	75	0	4,918	167	127	3.9
KENTUCKY	82	14	5,224	923	243	2.1
LOUISIANA	14	0	1,413	-34	102	1.4
MAINE	74	6	3,972	423	58	6.8
MARYLAND	81	18	9,069	1,277	120	7.6
MASSACHUSETTS	61	8	3,466	367	48	7.2
MICHIGAN	172	29	13,096	2,179	400	3.3
MINNESOTA	314	14	16,443	463	890	1.8
MISSISSIPPI	17	3	2,109	141	96	2.2
MISSOURI	101	13	6,288	760	252	2.5
MONTANA	19	1	1,346	122	29	4.6
NEBRASKA	53	6	3,992	203	121	3.3
NEVADA	10	-2	1,904	19	16	11.9
NEW HAMPSHIRE	35	1	2,296	-4	31	7.4
NEW JERSEY	41	7	3,376	580	40	8.4
NEW MEXICO	9	1	3,335	-263	58	5.7
NEW YORK	441	67	29,386	5,326	935	3.1
NORTH CAROLINA	32	0	3,968	594	131	3.0
NORTH DAKOTA	16	5	951	387	94	1.0
OHIO	363	51	21,482	2,549	393	5.5
OKLAHOMA	63	8	4,996	545	110	4.5
OREGON	81	1	8,350	712	100	8.3
PENNSYLVANIA	185	-4	11,563	-155	738	1.6
RHODE ISLAND	6	-1	294	-32	4	7.7
SOUTH CAROLINA	23	4	2,984	584	48	6.2
SOUTH DAKOTA	29	4	1,414	196	165	0.9
TENNESSEE	50	14	4,840	1,254	217	2.2
TEXAS	81	18	9,302	2,182	335	2.8
UTAH	45	9	6,272	926	84	7.5
VERMONT	153	15	8,147	804	194	4.2
VIRGINIA	77	8	8,675	662	172	5.0
WASHINGTON	133	9	15,799	1,602	213	7.4
WEST VIRGINIA	18	0	1,952	151	36	5.4
WISCONSIN	1,214	176	67,420	9,740	1,830	3.7
WYOMING	5	0	363	-36	12	3.0
NCDHIP TOTAL	5,248	602	431,682	53,322	11,175	3.9

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 9.--ENROLLMENT IN THE OFFICIAL DHIR AM-PM WITH MONITORING DEVICE PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
MAINE------------	1	0	232	10	58	0.4
NEW HAMPSHIRE----	1	0	228	2	31	0.7
OHIO-------------	2	2	78	78	393	0.0
TEXAS------------	1	1	144	144	335	0.0
NCDHIP TOTAL-----	5	3	682	234	11,175	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 10.--ENROLLMENT IN THE OFFICIAL DHIR WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	10	0	1,562	41	55	2.8
FLORIDA----------	4	-2	2,759	-431	190	2.3
GEORGIA----------	7	1	1,165	7	130	4.2
IDAHO------------	2	2	135	135	175	3.2
ILLINOIS---------	7	1	348	-49	230	2.6
IOWA-------------	4	2	258	99	386	1.6
LOUISIANA--------	13	-1	1,349	-116	102	7.4
MISSISSIPPI------	14	1	1,573	154	96	9.5
MISSOURI---------	2	0	141	-12	252	3.7
NORTH CAROLINA---	11	0	1,162	-150	131	8.0
SOUTH CAROLINA---	20	-4	4,069	-72	48	30.3
TENNESSEE--------	24	-1	1,906	-502	217	7.6
TEXAS------------	14	2	1,326	37	335	5.3
VIRGINIA---------	1	1	80	80	172	10.4
NCDHIP TOTAL-----	133	2	17,833	-779	11,175	0.2

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 11.--ENROLLMENT IN THE OWNER-SAMPLER PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	1	-2	14	-133	55	0.0
ALASKA	1	-1	74	-95	1	7.4
ARKANSAS	36	0	2,616	-890	84	3.1
CALIFORNIA	29	1	2,423	-517	940	0.3
COLORADO	4	0	225	-72	75	0.3
CONNECTICUT	14	-1	452	-33	50	0.9
DELAWARE	1	1	9	9	10	0.1
FLORIDA	0	-2	0	-146	190	0.0
GEORGIA	5	2	377	203	130	0.3
HAWAII	2	0	1,546	22	12	12.9
IDAHO	32	-4	4,615	-944	175	2.6
ILLINOIS	145	-15	6,837	-440	230	3.0
INDIANA	144	-3	7,530	287	204	3.7
IOWA	469	-69	18,932	-4,237	386	4.9
KANSAS	91	-9	4,504	-593	127	3.5
KENTUCKY	23	-3	1,361	-209	243	0.6
LOUISIANA	0	-1	0	-1	102	0.0
MAINE	29	4	1,160	101	58	2.0
MARYLAND	37	-4	1,916	-546	120	1.6
MASSACHUSETTS	19	0	641	-4	48	1.3
MICHIGAN	725	-14	40,201	-1,719	400	10.1
MINNESOTA	1,658	-139	66,664	-5,188	890	7.5
MISSOURI	190	4	10,348	829	252	4.1
MONTANA	8	0	857	2	29	3.0
NEBRASKA	45	0	3,099	-25	121	2.6
NEVADA	1	0	203	-14	16	1.3
NEW HAMPSHIRE	23	0	1,095	36	31	3.5
NEW JERSEY	11	0	429	-17	40	1.1
NEW MEXICO	3	2	1,939	1,835	58	3.3
NEW YORK	872	1	43,924	1,688	935	4.7
NORTH CAROLINA	4	2	1,021	857	131	0.8
NORTH DAKOTA	21	2	1,277	-197	94	1.4
OHIO	620	-40	30,555	-952	393	7.8
OKLAHOMA	11	-9	629	-370	110	0.6
OREGON	39	6	2,742	186	100	2.7
PENNSYLVANIA	937	128	39,476	6,874	738	5.3
SOUTH CAROLINA	0	-1	0	-54	48	0.0
SOUTH DAKOTA	150	-36	7,688	-1,741	165	4.7
TENNESSEE	2	0	118	-168	217	0.1
TEXAS	12	1	976	-178	335	0.3
UTAH	17	2	1,422	115	84	1.7
VERMONT	200	-11	9,709	-526	194	5.0
VIRGINIA	30	0	1,591	138	172	0.9
WASHINGTON	28	-9	2,151	-786	213	1.0
WEST VIRGINIA	8	-2	327	-100	36	0.9
WISCONSIN	9,528	76	409,862	1,448	1,830	22.4
WYOMING	0	-2	0	-140	12	0.0
NCDHIP TOTAL	16,225	-145	733,535	-6,405	11,175	6.6

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 12.--ENROLLMENT IN THE OWNER-SAMPLER AM-PM PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARKANSAS	6	1	397	-3	84	0.5
DELAWARE	4	0	476	71	10	4.8
IDAHO	1	0	59	-4	175	0.0
ILLINOIS	42	4	2,014	312	230	0.9
INDIANA	21	7	1,319	312	204	0.6
IOWA	227	42	10,437	1,805	386	2.7
KANSAS	12	9	618	537	127	0.5
LOUISIANA	0	-3	0	-142	102	0.0
MAINE	5	0	347	24	58	0.6
MICHIGAN	5	-3	411	-121	400	0.1
MINNESOTA	964	192	43,175	7,939	890	4.9
MISSOURI	13	1	576	14	252	0.2
NEBRASKA	25	0	1,294	-29	121	1.1
NEW HAMPSHIRE	1	-1	74	-164	31	0.2
NEW YORK	272	21	15,292	1,425	935	1.6
NORTH DAKOTA	8	1	720	415	94	0.8
OHIO	51	40	2,911	2,210	393	0.7
OKLAHOMA	6	4	528	458	110	0.5
PENNSYLVANIA	85	-119	4,905	-5,339	738	0.7
SOUTH DAKOTA	154	36	8,465	2,177	165	5.1
TEXAS	1	0	266	-128	335	0.1
VERMONT	15	4	683	-13	194	0.4
WASHINGTON	1	-1	284	-363	213	0.1
WISCONSIN	1,501	120	79,599	5,855	1,830	4.3
NCDHIP TOTAL	3,420	355	174,850	17,248	11,175	1.6

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 13.--ENROLLMENT IN THE OWNER-SAMPLER WITH ALTERNATE AM-PM COMPONENT SAMPLING PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	3	2	136	84	55	0.2
CONNECTICUT	0	-1	0	-467	50	0.0
FLORIDA	1	1	74	74	190	0.0
GEORGIA	3	0	159	-286	130	0.1
INDIANA	2	0	110	-41	204	0.1
KENTUCKY	6	1	492	173	243	0.2
LOUISIANA	2	1	75	-44	102	0.1
MARYLAND	1	1	113	113	120	0.1
MINNESOTA	6	6	340	340	890	0.0
MISSISSIPPI	5	0	537	124	96	0.6
NEW YORK	7	-3	580	-166	935	0.1
NORTH CAROLINA	15	0	896	14	131	0.7
OHIO	8	8	379	379	393	0.1
SOUTH CAROLINA	3	2	202	157	48	0.4
TENNESSEE	4	3	506	492	217	0.2
TEXAS	6	-2	671	44	335	0.2
VIRGINIA	2	2	124	124	172	0.1
NCDHIP TOTAL	74	21	5,394	1,114	11,175	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 14.--ENROLLMENT IN THE OWNER-SAMPLER MILK-ONLY-RECORDS PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	1	0	261	-11	55	0.5
ARIZONA	3	3	736	736	82	0.9
ARKANSAS	2	2	226	226	84	0.3
COLORADO	3	3	716	716	75	1.0
CONNECTICUT	7	-1	1,302	548	50	2.6
FLORIDA	20	2	10,062	324	190	5.3
GEORGIA	22	-9	3,991	-1,528	130	3.1
HAWAII	4	4	2,514	2,514	12	20.9
IDAHO	1	1	401	401	175	0.2
ILLINOIS	30	30	1,911	1,911	230	0.8
INDIANA	1	0	55	-4	204	0.0
IOWA	4	4	531	531	386	0.1
KANSAS	5	5	231	231	127	0.2
KENTUCKY	3	0	246	127	243	0.1
LOUISIANA	1	-2	77	-139	102	0.1
MAINE	16	1	1,541	69	58	2.7
MARYLAND	4	4	276	276	120	0.2
MASSACHUSETTS	4	1	391	53	48	0.8
MICHIGAN	80	5	7,015	385	400	1.8
MINNESOTA	4	-1	244	-438	890	0.0
MISSOURI	3	3	465	465	252	0.2
NEVADA	1	1	86	86	16	0.5
NEW HAMPSHIRE	2	-2	209	-230	31	0.7
NEW JERSEY	2	-1	141	-179	40	0.4
NEW YORK	95	-1	9,012	207	935	1.0
NORTH CAROLINA	17	3	1,545	321	131	1.2
NORTH DAKOTA	2	2	106	106	94	0.1
OHIO	10	10	553	553	393	0.1
OREGON	1	1	58	58	100	0.1
PENNSYLVANIA	0	-6	0	-576	738	0.0
SOUTH CAROLINA	3	-1	266	-112	48	0.6
SOUTH DAKOTA	46	46	2,954	2,954	165	1.8
TEXAS	11	4	1,749	435	335	0.5
UTAH	3	3	290	290	84	0.3
VERMONT	5	0	363	-47	194	0.2
VIRGINIA	0	-1	0	-51	172	0.0
WASHINGTON	4	4	814	814	213	0.4
WISCONSIN	29	4	2,484	419	1,830	0.1
NCDHIP TOTAL	449	121	53,822	12,441	11,175	0.5

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 15.--ENROLLMENT IN THE OWNER-SAMPLER AM-PM MILK-ONLY-RECORDS PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
FLORIDA	3	-1	1,012	-1,124	190	0.5
GEORGIA	0	-1	0	-830	130	0.0
LOUISIANA	2	0	128	-1,066	102	0.1
MAINE	0	-2	0	-292	58	0.0
MICHIGAN	4	1	613	124	400	0.2
MINNESOTA	4	1	400	96	890	0.0
NEW HAMPSHIRE	1	0	114	5	31	0.4
NEW YORK	56	-2	4,607	36	935	0.5
TEXAS	3	3	311	311	335	0.1
VERMONT	3	-1	305	-54	194	0.2
WASHINGTON	1	1	475	475	213	0.2
NCDHIP TOTAL	77	-1	7,965	-2,319	11,175	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 16.--ENROLLMENT IN THE OWNER-SAMPLER WITH AVERAGE (BREED OR PLANT) COMPONENTS USED PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA	2	-2	348	-121	55	0.6
GEORGIA	2	0	182	19	130	0.1
INDIANA	3	0	211	-21	204	0.1
KENTUCKY	34	1	3,573	444	243	1.5
NORTH CAROLINA	3	1	182	98	131	0.1
SOUTH CAROLINA	2	-2	118	-624	48	0.2
TEXAS	9	1	2,019	199	335	0.6
VIRGINIA	12	2	931	107	172	0.5
NCDHIP TOTAL	67	1	7,564	101	11,175	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 17.--ENROLLMENT IN THE OWNER-SAMPLER AM/PM WITH AVERAGE(BREED OR PLANT)COMPONENTS PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
INDIANA	1	1	79	79	204	0.0
OHIO	1	1	294	294	393	0.1
NCDHIP TOTAL	2	2	373	373	11,175	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 18.--ENROLLMENT IN THE COMMERCIAL PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARIZONA----------	5	2	1,498	810	82	1.8
CALIFORNIA-------	137	-24	67,580	-10,702	940	7.2
COLORADO---------	14	0	2,308	-120	75	3.1
IDAHO------------	2	-1	511	161	175	0.3
MARYLAND---------	2	0	326	251	120	0.3
NEVADA-----------	4	0	144	-1	16	0.9
NEW MEXICO-------	6	-1	1,946	655	58	3.4
OHIO-------------	1	0	276	12	393	0.1
OREGON-----------	23	-34	4,184	-5,223	100	4.2
PENNSYLVANIA-----	3	1	506	73	738	0.1
UTAH-------------	5	-7	640	-1,404	84	0.8
WASHINGTON-------	30	-16	6,524	-2,578	213	3.1
WYOMING----------	1	1	41	41	12	0.3
NCDHIP TOTAL-----	233	-79	86,484	-18,025	11,175	0.8

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 19.--ENROLLMENT IN THE COMMERCIAL AM-PM PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
CALIFORNIA-------	11	11	5,672	5,672	940	0.6
COLORADO---------	1	0	645	24	75	0.9
IDAHO------------	5	-1	774	-54	175	0.4
MARYLAND---------	6	-3	451	-322	120	0.4
MONTANA----------	2	-1	745	-87	29	2.6
NEVADA-----------	0	-1	0	-258	16	0.0
OHIO-------------	103	22	7,078	1,793	393	1.8
WASHINGTON-------	10	-2	1,446	-499	213	0.7
NCDHIP TOTAL-----	138	25	16,811	6,269	11,175	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 20.--ENROLLMENT IN THE SUPERVISED SAMPLING PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARIZONA----------	1	1	408	408	82	0.5
NEW MEXICO-------	1	1	182	182	58	0.3
UTAH-------------	1	1	69	69	84	0.1
NCDHIP TOTAL-----	3	3	659	659	11,175	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 21.--ENROLLMENT IN THE SUPERVISED AM-PM PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ARKANSAS---------	2	1	167	86	84	0.2
CALIFORNIA-------	0	-4	0	-3,132	940	0.0
CONNECTICUT------	19	2	1,283	-44	50	2.6
ILLINOIS---------	2	0	107	-11	230	0.0
INDIANA----------	79	0	4,498	227	204	2.2
IOWA-------------	607	93	29,821	4,023	386	7.7
MICHIGAN---------	0	-20	0	-1,608	400	0.0
NEW HAMPSHIRE----	6	3	696	447	31	2.2
NEW JERSEY-------	40	12	2,696	1,004	40	6.7
NEW MEXICO-------	1	1	267	267	58	0.5
NEW YORK---------	2,016	-83	132,057	-2,884	935	14.1
OKLAHOMA---------	14	5	1,049	353	110	1.0
OREGON-----------	1	0	12	-5	100	0.0
PENNSYLVANIA-----	1,186	65	64,112	4,790	738	8.7
TEXAS------------	5	5	588	588	335	0.2
VERMONT----------	73	6	4,636	123	194	2.4
NCDHIP TOTAL-----	4,051	86	241,989	4,224	11,175	2.2

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 22.--ENROLLMENT IN THE SUPERVISED MILK-ONLY-RECORDS PLAN, JANUARY 1, 1983

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	1	1	221	221	55	0.4
ARIZONA----------	0	-3	0	-707	82	0.0
ARKANSAS---------	0	-3	0	-337	84	0.0
COLORADO---------	0	-4	0	-746	75	0.0
CONNECTICUT------	6	2	1,256	432	50	2.5
FLORIDA----------	87	-6	32,566	-4,591	190	17.1
GEORGIA----------	81	-1	13,544	-54	130	10.4
HAWAII-----------	0	-4	0	-2,279	12	0.0
IDAHO------------	0	-2	0	-532	175	0.0
ILLINOIS---------	0	-47	0	-3,047	230	0.0
INDIANA----------	1	-1	215	-257	204	0.1
IOWA-------------	0	-11	0	-954	386	0.0
KANSAS-----------	0	-7	0	-353	127	0.0
KENTUCKY---------	18	5	1,557	482	243	0.6
MAINE------------	2	1	568	50	58	1.0
MARYLAND---------	0	-3	0	-211	120	0.0
MASSACHUSETTS----	1	0	157	4	48	0.3
MICHIGAN---------	17	-1	2,481	-629	400	0.6
MISSOURI---------	0	-2	0	-563	252	0.0
NEVADA-----------	0	-1	0	-91	16	0.0
NEW HAMPSHIRE----	1	0	138	6	31	0.4
NEW JERSEY-------	0	-1	0	-184	40	0.0
NEW YORK---------	3	1	420	128	935	0.0
NORTH CAROLINA---	31	16	4,529	2,164	131	3.5
NORTH DAKOTA-----	0	-2	0	-106	94	0.0
OHIO-------------	0	-5	0	-344	393	0.0
OKLAHOMA---------	0	-8	0	-808	110	0.0
PENNSYLVANIA-----	8	8	746	746	738	0.1
SOUTH CAROLINA---	5	-1	686	-59	48	1.4
SOUTH DAKOTA-----	0	-46	0	-2,858	165	0.0
TEXAS------------	14	1	2,079	295	335	0.6
UTAH-------------	2	0	1,067	872	84	1.3
VERMONT----------	2	2	123	123	194	0.1
VIRGIN ISLANDS---	4	0	556	28	1	55.6
WASHINGTON-------	0	-4	0	-809	213	0.0
NCDHIP TOTAL-----	284	-126	62,909	-14,968	11,175	0.6

1/ INCLUDES VIRGIN ISLANDS.

2/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983, EXCEPT DATA FOR VIRGIN ISLANDS, WHICH WERE ESTIMATED FROM OTHER SOURCES.

TABLE 23.--ENROLLMENT IN THE SUPERVISED AM-PM MILK-ONLY-RECORDS PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
CONNECTICUT------	0	-1	0	-83	50	0.0
MAINE------------	2	1	620	229	58	1.1
MICHIGAN---------	0	-1	0	-68	400	0.0
NEW JERSEY-------	1	0	167	-3	40	0.4
NEW MEXICO-------	1	1	252	252	58	0.4
NEW YORK---------	8	-5	1,130	-560	935	0.1
PENNSYLVANIA-----	0	-1	0	-108	738	0.0
VERMONT----------	2	1	91	37	194	0.0
WASHINGTON-------	1	1	478	478	213	0.2
NCDHIP TOTAL-----	15	-4	2,738	174	11,175	0.0

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 24.--ENROLLMENT IN THE BASIC PRODUCTION AND MANAGEMENT PLAN, JANUARY 1, 1983

STATE	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 1/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
ALABAMA----------	3	0	259	1	55	0.5
FLORIDA----------	1	0	305	-25	190	0.2
INDIANA----------	1	-9	54	-457	204	0.0
KENTUCKY---------	13	-1	979	-194	243	0.4
LOUISIANA--------	19	-11	1,802	-883	102	1.8
MISSISSIPPI------	18	-3	1,940	17	96	2.0
NEW HAMPSHIRE----	5	0	171	6	31	0.6
NORTH CAROLINA---	5	-2	543	-94	131	0.4
SOUTH CAROLINA---	2	-1	134	-71	48	0.3
TENNESSEE--------	33	2	2,211	-736	217	1.0
TEXAS------------	2	0	189	-6	335	0.1
NCDHIP TOTAL-----	102	-25	8,587	-2,442	11,175	0.1

1/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 25.--ENROLLMENT IN ALL OTHER NONOFFICIAL PLANS, JANUARY 1, 1983

STATE 1/	HERDS	CHANGE IN HERDS FROM 1/1/82	COWS	CHANGE IN COWS FROM 1/1/82	ALL MILK COWS 2/	COWS ENROLLED
	NUMBER	NUMBER	NUMBER	NUMBER	THOUSANDS	PCT
MICHIGAN---------(TMT)	33	11	2,997	1,560	400	0.7
NORTH DAKOTA-----(WADAM)	0	-12	0	-530	94	0.0
NCDHIP TOTAL-----	33	-1	2,997	1,030	11,175	0.0

1/ (TMT) = TRIMONTHLY TESTING; (WADAM) = WEIGH-A-DAY-A-MONTH.

2/ PRELIMINARY DATA FOR JANUARY 1, 1983, MILK COWS AND HEIFERS THAT HAVE CALVED, EXCLUDING HEIFERS NOT YET FRESH, ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) IN "CATTLE," JANUARY 1983.

TABLE 26.--ENROLLMENT BY PLAN AND STATE FOR DAIRY GOATS, JANUARY 1, 1983

STATE 1/	OFFICIAL DAIRY HERD IMPROVEMENT		DAIRY HERD IMPROVEMENT REGISTRY		NONOFFICIAL PLANS		ALL TESTING PLANS		CHANGE IN HERDS FROM 1/1/82	CHANGE IN DOES FROM 1/1/82
	HERDS	DOES	HERDS	DOES	HERDS	DOES	HERDS	DOES		
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ALABAMA----------	0	0	6	33	0	0	6	33	0	0
ALASKA-----------	0	0	2	15	0	0	2	15	2	15
ARIZONA----------	1	14	59	399	1	4	61	417	8	27
ARKANSAS---------	6	99	21	456	0	0	27	555	-5	87
CALIFORNIA-------	19	431	250	3,251	1	29	270	3,711	-20	190
COLORADO---------	7	48	43	206	0	0	50	254	1	8
CONNECTICUT------	10	43	14	132	0	0	24	175	3	26
DELAWARE---------	1	12	2	5	0	0	3	17	-4	-7
FLORIDA----------	3	29	28	190	0	0	31	219	1	-4
GEORGIA----------	1	3	17	102	0	0	18	105	1	6
IDAHO------------	4	24	25	177	0	0	29	201	1	26
ILLINOIS---------	4	23	31	249	0	0	35	272	13	92
INDIANA----------	2	5	10	81	0	0	12	86	2	13
IOWA-------------	3	11	11	69	1	6	15	86	-4	-91
KANSAS-----------	13	46	27	142	0	0	40	188	14	70
KENTUCKY---------	0	0	0	0	0	0	0	0	-1	-10
LOUISIANA--------	1	3	6	43	0	0	7	46	-3	-12
MAINE------------	38	210	11	87	0	0	49	297	2	11
MARYLAND---------	1	8	36	260	0	0	37	268	26	42
MASSACHUSETTS----	9	52	4	14	0	0	13	66	-8	-47
MICHIGAN---------	11	51	46	350	1	5	58	406	12	122
MINNESOTA--------	17	200	0	0	1	1	18	201	0	4
MISSISSIPPI------	0	0	0	0	0	0	0	0	-1	-7
MISSOURI---------	10	107	14	113	3	20	27	240	-7	-233
MONTANA----------	0	0	10	72	1	4	11	76	-3	13
NEBRASKA---------	0	0	0	0	1	6	1	6	-3	-48
NEVADA-----------	2	10	16	128	0	0	18	138	-1	14
NEW HAMPSHIRE----	18	126	4	49	0	0	22	175	0	13
NEW JERSEY-------	21	160	12	151	0	0	33	311	0	46
NEW MEXICO-------	2	39	18	132	0	0	20	171	2	-85
NEW YORK---------	66	391	20	183	0	0	86	574	-22	-109
NORTH CAROLINA---	1	3	9	73	0	0	10	76	1	13
NORTH DAKOTA-----	1	4	2	15	0	0	3	19	1	4
OHIO-------------	2	5	55	377	2	24	59	406	-4	-102
OKLAHOMA---------	10	93	21	194	0	0	31	287	-2	-92
OREGON-----------	24	192	153	1,437	0	0	177	1,629	-39	-202
PENNSYLVANIA-----	3	34	17	196	1	24	21	254	-5	-7
PUERTO RICO------	1	180	0	0	0	0	1	180	0	68
RHODE ISLAND-----	9	57	1	7	0	0	10	64	4	7
SOUTH CAROLINA---	0	0	4	14	0	0	4	14	-1	-20
TENNESSEE--------	2	10	31	166	0	0	33	176	13	92
TEXAS------------	6	72	41	362	0	0	47	434	7	58
UTAH-------------	1	4	9	44	1	4	11	52	2	-19
VERMONT----------	0	0	6	97	0	0	6	97	-7	-32
VIRGINIA---------	6	109	13	122	0	0	19	231	-5	15
WASHINGTON-------	3	37	60	440	2	9	65	486	-3	7
WEST VIRGINIA----	7	65	1	2	0	0	8	67	1	5
WISCONSIN--------	6	28	36	493	5	102	47	623	-5	36
WYOMING----------	4	27	1	6	0	0	5	33	0	-15
NCDHIP TOTAL-----	356	3,065	1,203	11,134	21	238	1,580	14,437	-36	-12

1/ INCLUDES PUERTO RICO.

TABLE 27.--TYPES OF SERVICES BY STATE FOR COWS AND GOATS IN NCDHIP, JANUARY 1, 1983

STATE 1/	COW HERDS	COWS	DOE HERDS	DOES
	NUMBER	NUMBER	NUMBER	NUMBER
		MASTITIS SCREENING		
ALABAMA----------	118	15,181	0	0
ALASKA-----------	2	142	1	13
ARIZONA----------	109	45,681	2	16
ARKANSAS---------	91	4,427	0	0
CALIFORNIA-------	1,224	500,256	77	898
COLORADO---------	243	33,014	12	66
CONNECTICUT------	75	6,229	2	20
DELAWARE---------	3	139	0	0
FLORIDA----------	44	15,939	0	0
GEORGIA----------	255	32,422	0	0
HAWAII-----------	10	6,078	0	0
IDAHO------------	263	34,626	6	41
ILLINOIS---------	319	15,524	0	0
INDIANA----------	190	13,213	0	0
IOWA-------------	505	20,945	0	0
KANSAS-----------	220	12,487	0	0
KENTUCKY---------	256	17,406	0	0
LOUISIANA--------	46	4,826	0	0
MAINE------------	109	5,767	10	73
MARYLAND---------	318	28,631	9	78
MASSACHUSETTS----	77	3,845	0	0
MICHIGAN---------	874	65,233	0	0
MINNESOTA--------	3,484	177,484	1	10
MISSISSIPPI------	5	596	0	0
MISSOURI---------	396	20,556	0	0
MONTANA----------	93	8,519	3	20
NEBRASKA---------	55	2,978	0	0
NEVADA-----------	32	9,710	0	0
NEW HAMPSHIRE----	108	7,387	10	80
NEW JERSEY-------	128	10,430	8	56
NEW MEXICO-------	49	27,463	0	0
NEW YORK---------	2,543	171,154	19	177
NORTH CAROLINA---	317	35,652	0	0
NORTH DAKOTA-----	20	1,052	0	0
OHIO-------------	1,366	83,817	13	105
OKLAHOMA---------	87	4,762	0	0
OREGON-----------	304	38,418	0	0
PENNSYLVANIA-----	3,533	194,456	0	0
PUERTO RICO------	188	33,854	1	180
RHODE ISLAND-----	6	417	0	0
SOUTH CAROLINA---	75	12,370	0	0
SOUTH DAKOTA-----	131	6,459	0	0
TENNESSEE--------	381	36,505	0	0
TEXAS------------	220	31,149	0	0
UTAH-------------	403	46,173	8	37
VERMONT----------	362	20,927	2	9
VIRGINIA---------	688	73,077	0	0
WASHINGTON-------	515	78,862	6	69
WEST VIRGINIA----	49	4,095	0	0
WISCONSIN--------	5,026	254,714	0	0
WYOMING----------	19	1,340	1	6
NCDHIP TOTAL-----	25,934	2,276,387	191	1,954
		PROTEIN		
ALABAMA----------	18	2,378	0	0
ARIZONA----------	1	408	0	0
		PROTEIN (CON)		
ARKANSAS---------	3	213	0	0
CALIFORNIA-------	65	16,052	34	238
COLORADO---------	251	33,990	43	212
CONNECTICUT------	51	3,214	1	13
DELAWARE---------	6	255	0	0
FLORIDA----------	3	518	0	0
GEORGIA----------	51	5,779	0	0
IDAHO------------	561	62,032	27	213
ILLINOIS---------	55	2,719	1	13
INDIANA----------	730	45,442	0	0
IOWA-------------	128	5,671	0	0
KENTUCKY---------	64	3,714	0	0
LOUISIANA--------	2	135	0	0
MAINE------------	47	2,289	12	56
MARYLAND---------	685	59,247	32	240
MASSACHUSETTS----	80	4,316	0	0
MICHIGAN---------	115	6,761	0	0
MONTANA----------	23	2,051	0	0
NEBRASKA---------	9	466	0	0
NEVADA-----------	1	286	0	0
NEW HAMPSHIRE----	82	4,118	3	23
NEW JERSEY-------	248	18,370	33	311
NEW MEXICO-------	14	3,641	0	0
NEW YORK---------	6,226	412,417	86	574
NORTH CAROLINA---	45	4,049	0	0
NORTH DAKOTA-----	3	159	1	3
OHIO-------------	2,494	149,433	48	354
OKLAHOMA---------	9	459	1	3
OREGON-----------	310	36,534	168	1,581
PENNYSLVANIA-----	6,197	340,769	21	254
SOUTH CAROLINA---	37	5,724	0	0
SOUTH DAKOTA-----	9	477	0	0
TENNESSEE--------	1	183	0	0
TEXAS------------	751	101,775	47	434
UTAH-------------	406	47,343	10	45
VERMONT----------	249	12,136	2	48
VIRGINIA---------	985	96,000	0	0
WASHINGTON-------	731	103,275	54	428
WEST VIRGINIA----	25	2,158	1	5
WISCONSIN--------	8,170	397,612	1	0
WYOMING----------	27	2,408	4	32
NCDHIP TOTAL-----	29,965	1,996,976	629	5,080
		SNF		
ALASKA-----------	2	142	2	15
CALIFORNIA-------	934	326,524	31	1,286
IDAHO------------	6	593	0	0
IOWA-------------	3	225	0	0
KANSAS-----------	2	40	0	0
MONTANA----------	5	289	0	0
NEVADA-----------	6	1,094	0	0
NORTH DAKOTA-----	2	70	0	0
OREGON-----------	5	337	0	0
NCDHIP TOTAL-----	965	329,314	33	1,301

1/ INCLUDES PUERTO RICO IN MASTITIS SCREENING.

TABLE 28.--SUMMARY OF VERIFIED IDENTIFICATION PROGRAM (VIP) ACTIVITY BY STATE, 1981-82 AND ALL YEARS

STATE 1/	1981				1982				ALL YEARS 2/			
	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS	HERDS	MALES	FEMALES	ALL ANIMALS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
ARKANSAS	7	0	133	133	13	1	421	422	33	1	945	946
CALIFORNIA	0	0	0	0	0	0	0	0	3	47	0	47
CONNECTICUT	0	0	0	0	0	0	0	0	1	0	1	1
DELAWARE	1	0	6	6	0	0	0	0	4	0	37	37
FLORIDA	2	0	63	63	2	0	116	116	12	0	365	365
IDAHO	7	5	193	198	5	0	62	62	20	15	414	429
ILLINOIS	39	4	611	615	45	1	802	803	191	12	3,367	3,379
INDIANA	6	0	154	154	8	1	167	168	41	1	1,048	1,049
IOWA	149	35	1,509	1,544	160	22	2,103	2,125	673	103	9,354	9,457
KANSAS	163	13	3,099	3,112	149	2	3,193	3,195	683	43	17,190	17,233
KENTUCKY	2	0	58	58	2	0	77	77	19	3	454	457
MAINE	7	0	52	52	9	0	73	73	36	3	376	379
MARYLAND	62	6	2,060	2,066	73	3	1,486	1,489	183	11	4,232	4,243
MASSACHUSETTS	3	0	11	11	4	1	117	118	12	1	237	238
MICHIGAN	12	2	93	95	12	0	154	154	65	12	910	922
MINNESOTA	98	6	1,515	1,521	106	6	1,641	1,647	462	52	7,664	7,716
MISSOURI	139	21	1,922	1,943	164	31	2,161	2,192	628	106	9,376	9,482
MONTANA	0	0	0	0	1	0	1	1	2	0	18	18
NEBRASKA	57	30	877	907	43	37	793	830	235	128	4,739	4,867
NEW HAMPSHIRE	0	0	0	0	4	0	36	36	12	1	77	78
NEW JERSEY	0	0	0	0	2	0	16	16	3	0	19	19
NEW YORK	65	1	866	867	56	3	955	958	368	18	5,797	5,815
NORTH CAROLINA	1	0	28	28	1	0	24	24	9	0	122	122
NORTH DAKOTA	2	1	36	37	3	2	29	31	16	4	167	171
OHIO	81	7	1,538	1,545	84	16	1,570	1,586	321	44	5,670	5,714
OKLAHOMA	18	3	335	338	13	0	358	358	60	12	1,723	1,735
OREGON	0	0	0	0	1	0	6	6	1	0	6	6
PENNSYLVANIA	21	1	191	192	20	0	112	112	118	2	1,088	1,090
PUERTO RICO	6	3	25	28	0	0	0	0	16	6	97	103
SOUTH CAROLINA	3	0	16	16	2	0	15	15	6	0	36	36
SOUTH DAKOTA	12	1	171	172	8	0	125	125	46	1	647	648
TEXAS	0	0	0	0	0	0	0	0	1	0	1	1
UTAH	2	0	2	2	0	0	0	0	15	2	260	262
VERMONT	1	0	26	26	2	1	2	3	6	1	51	52
VIRGINIA	6	0	163	163	9	0	218	218	16	0	431	431
WASHINGTON	0	0	0	0	0	0	0	0	3	0	96	96
WISCONSIN	71	0	783	783	95	5	1,050	1,055	317	22	3,697	3,719
NCDHIP TOTAL	1,043	139	16,536	16,675	1,096	132	17,883	18,015	4,637	651	80,712	81,363

1/ INCLUDES PUERTO RICO.
2/ INCLUDES 1976-82.

TABLE 29.--SUMMARY OF OFFICIAL DAIRY RECORDKEEPING PLANS, 1906-83 1/

YEAR 2/	ASSOCI- ATIONS 3/	SUPER- VISORS 3/	HERDS EN- ROLLED	COWS EN- ROLLED	COWS PER HERD	COWS ENROLLED	HERDS REPORTED	COWS REPORTED	AVERAGE PRODUCTION MILK	AVERAGE PRODUCTION FAT	AVERAGE PRODUCTION FAT	ALL MILK COWS 4/	ALL PLANS
	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	PCT	NUMBER	NUMBER	LB	PCT	LB	THOUSANDS	PCT
1906----	1	---	31	239	7.7	(5/)	---	---	5,300	4.06	215	17,110	(5/)
1907----	4	---	---	1,606	---	(5/)	---	---	5,366	4.10	220	17,509	(5/)
1908----	6	---	---	3,921	---	(5/)	---	---	---	---	---	17,872	(5/)
1909----	25	---	---	11,921	---	0.1	---	---	---	---	---	18,081	0.1
1910----	40	---	---	6/25,000	---	0.1	---	---	6/5,730	3.96	6/227	18,300	0.1
1911----	64	---	---	6/40,000	---	0.2	---	---	---	---	---	18,302	0.2
1912----	82	---	---	6/43,000	---	0.2	---	---	---	---	---	18,397	0.2
1913----	100	---	---	47,150	---	0.3	---	---	---	---	---	18,460	0.3
1914----	163	---	---	73,280	---	0.4	---	---	---	---	---	18,701	0.4
1915----	211	---	---	105,526	---	0.6	---	---	---	---	---	19,150	0.6
1916----	346	---	---	150,677	---	0.8	---	---	---	---	---	19,632	0.8
1917----	459	---	11,720	216,831	18.5	1.1	---	---	---	---	---	20,092	1.1
1918----	353	---	9,778	172,518	17.6	0.8	---	---	---	---	---	20,416	0.8
1919----	385	---	10,000	167,313	16.7	0.8	---	---	---	---	---	20,425	0.8
1920----	468	---	11,948	203,472	17.0	1.0	---	---	6,175	4.00	247	20,335	1.0
1921----	452	---	11,209	193,928	17.3	1.0	---	---	---	---	---	20,336	1.0
1922----	513	---	12,508	215,321	17.2	1.0	---	---	---	---	---	20,731	1.0
1923----	627	---	16,357	277,010	16.9	1.3	---	---	---	---	---	21,018	1.3
1924 7/-	---	---	---	---	---	---	---	---	---	---	---	21,211	---
1925----	732	---	18,677	307,073	16.4	1.4	---	42,302	7,189	3.95	284	21,417	1.4
1926----	777	---	19,540	327,653	16.8	1.5	---	103,443	7,331	3.96	290	21,503	1.5
1927----	837	---	21,128	362,014	17.1	1.7	---	116,509	7,411	3.95	293	21,312	1.7
1928----	947	---	23,327	414,891	17.8	2.0	---	152,412	7,476	3.96	296	21,191	2.0
1929----	1,090	---	26,182	465,804	17.8	2.2	---	194,859	7,498	3.97	298	21,223	2.2
1930----	1,143	---	27,888	507,549	18.2	2.4	---	235,624	7,642	3.96	303	21,618	2.4
1931----	1,112	---	26,308	510,714	19.4	2.3	---	219,924	7,812	3.92	306	22,218	2.3
1932----	1,005	---	20,351	427,044	21.0	1.9	---	186,683	7,858	3.95	310	23,108	1.9
1933----	881	---	15,447	358,501	23.2	1.5	---	163,014	7,849	3.99	313	24,105	1.5
1934----	793	---	13,694	325,837	23.8	1.3	---	203,930	8,015	4.02	322	25,062	1.3
1935----	809	---	15,573	364,218	23.4	1.5	---	200,367	7,977	4.04	322	25,198	1.5
1936----	876	---	17,344	404,412	23.3	1.7	---	257,248	7,912	4.03	319	24,187	1.7
1937----	992	---	20,772	496,562	23.9	2.1	---	354,568	7,923	4.04	320	23,727	2.1
1938----	1,106	---	23,701	558,993	23.6	2.4	---	448,025	7,831	4.05	317	23,340	2.4
1939----	1,228	---	25,949	625,284	24.1	2.7	---	507,563	7,977	4.05	323	23,215	2.7
1940----	1,300	---	27,948	676,141	24.2	2.9	---	545,382	8,133	4.07	331	23,273	2.9
1941----	1,383	---	31,381	763,502	24.3	3.2	---	591,103	8,225	4.07	335	23,671	3.2
1942----	1,421	---	32,957	816,117	24.8	3.4	---	514,758	8,323	4.07	339	24,288	3.4
1943----	1,057	---	24,155	616,972	25.5	2.5	---	375,914	8,325	4.06	338	25,027	2.5
1944----	954	---	20,825	561,587	27.0	2.2	---	383,337	8,296	4.05	336	25,451	2.2
1945----	949	---	21,254	577,200	27.2	2.3	---	384,360	8,592	4.03	346	25,597	2.3
1946----	1,124	---	23,331	627,878	27.0	2.5	---	413,554	8,635	4.04	349	25,033	2.5
1947----	1,426	---	28,812	775,546	26.9	3.2	---	533,061	8,638	4.03	348	24,089	3.2
1948----	1,668	---	33,274	886,129	26.6	3.8	---	620,385	8,675	4.03	350	23,329	3.8
1949----	1,787	---	35,851	943,939	26.3	4.2	---	729,150	8,907	4.03	359	22,336	4.2
1950----	1,973	---	40,100	1,088,872	27.2	4.9	---	836,922	9,172	4.03	370	22,024	4.9
1951----	2,143	---	42,949	1,186,615	27.6	5.4	---	885,859	9,195	4.02	370	21,944	5.4
1952----	2,109	---	40,105	1,166,297	29.1	5.4	---	928,376	9,192	3.98	366	21,505	5.4
1953----	2,151	---	40,983	1,226,588	29.9	5.8	---	1,020,326	9,253	3.98	368	21,338	5.8
1954----	2,175	---	41,254	1,311,698	31.8	6.1	---	1,079,557	9,363	3.97	372	21,691	6.1
1955----	2,288	---	41,240	1,333,866	32.3	6.2	---	1,175,378	9,502	3.95	375	21,581	6.2
1956----	2,266	---	40,984	1,406,306	34.4	6.7	---	1,229,971	9,713	3.94	383	21,044	8/8.5
1957----	1,700	2,310	41,638	1,479,799	35.5	7.2	---	1,256,129	9,894	3.93	389	20,501	9/9.3
1958----	1,544	2,293	39,985	1,548,884	38.7	7.8	---	1,345,750	10,068	3.91	394	19,774	10.7
1959----	1,500	2,337	40,284	1,607,538	39.9	8.6	---	1,406,665	10,327	3.88	401	18,711	11.9
1960----	1,509	2,397	41,293	1,746,752	42.3	9.8	---	10/1,343,725	10/10,561	3.87	10/409	17,901	13.6
1961----	1,395	2,448	42,558	1,867,469	43.9	10.7	28,649	1,280,785	10,796	3.87	418	17,515	14.8
1962----	1,436	2,472	42,034	1,958,355	46.6	11.4	32,794	1,531,826	11,032	3.86	426	17,243	15.8
1963----	1,441	2,516	41,937	2,006,534	47.8	11.9	35,378	1,674,803	11,286	3.85	434	16,842	16.5
1964----	1,420	2,474	40,670	2,010,144	49.4	12.4	35,689	1,746,475	11,685	3.83	447	16,260	17.4
1965----	1,424	2,439	40,075	2,087,581	52.1	13.3	35,604	1,821,252	11,976	3.82	457	15,677	18.9
1966----	1,418	2,378	38,879	2,058,592	52.9	13.8	34,886	1,852,533	12,127	3.81	462	14,953	19.8
1967----	1,344	2,319	37,683	2,098,919	55.7	14.9	34,515	1,890,024	12,307	3.80	468	14,071	21.2
1968----	1,318	2,304	36,869	2,131,929	57.8	15.9	33,560	1,924,200	12,397	3.80	471	13,415	22.6
1969----	1,289	2,250	35,617	2,138,953	60.1	16.7	33,130	1,959,647	12,553	3.79	476	12,832	23.5
1970----	1,267	2,225	34,308	2,122,011	61.9	17.2	31,138	1,937,390	12,750	3.79	483	12,307	25.3
1971----	1,274	2,201	33,996	2,218,402	65.3	18.6	30,699	1,995,463	13,000	3.76	489	11,909	26.8
1972----	1,247	2,186	33,197	2,244,685	67.6	19.1	30,190	2,050,132	13,226	3.75	496	11,776	27.2
1973----	1,231	2,164	33,578	2,359,611	70.3	20.3	30,826	2,177,626	13,287	3.76	499	11,622	28.7
1974----	1,130	2,209	33,146	2,416,669	72.9	21.4	30,280	2,221,349	13,163	3.75	493	11,297	30.2
1975----	1,105	2,183	32,222	2,432,961	75.5	21.7	29,543	2,216,817	13,421	3.76	505	11,220	31.0
1976----	1,051	2,218	32,232	2,438,365	75.7	22.0	29,634	2,240,752	13,632	3.75	511	11,087	31.4
1977----	1,028	2,266	33,755	2,581,164	76.5	23.4	30,764	2,373,261	14,435	3.73	539	11,035	33.5
1978----	1,046	2,432	34,972	2,704,064	77.3	24.7	31,783	2,476,946	14,631	3.70	542	10,930	35.4
1979----	1,045	2,541	36,105	2,792,175	77.3	25.7	32,831	2,571,361	14,644	3.70	542	10,853	36.8
1980----	1,025	2,638	37,576	2,966,558	78.9	26.8	34,449	2,771,379	14,786	3.70	547	11,074	37.9
1981----	1,066	2,824	39,524	3,197,353	80.8	28.7	35,206	2,867,177	14,960	3.70	553	11,135	40.2
1982----	1,084	2,916	40,933	3,382,977	82.6	30.5	36,671	3,044,386	15,137	3.68	558	11,107	43.1
1983----	1,053	3,116	41,029	3,431,507	83.6	30.7	37,548	3,175,552	15,280	3.69	564	11,175	43.3

1/ DASHES INDICATE DATA NOT REPORTED OR CALCULATED.

2/ HERDS AND COWS ARE ENROLLED AS OF JANUARY 1 OF THE STATED YEAR. FROM 1981, THE REPORTED HERDS AND COWS AND AVERAGE PRODUCTION WILL BE FOR THE CALENDAR YEAR IMMEDIATELY PRECEDING THE STATED YEAR. INCLUDES ALL PLANS.

3/ INCLUDES ALL PLANS. PRIOR TO 1957, ASSOCIATIONS WERE COUNTED BASED ON SUPERVISOR CIRCUITS.

4/ 1906-24, U.S. ESTIMATE OF COWS AND HEIFERS 2 YEARS OLD AND OLDER JANUARY 1, KEPT FOR MILK, EXCLUDING THOSE NOT FRESH. ESTIMATED BY SUBTRACTING 1,120,000 FROM DATA IN TABLE 543, "AGRICULTURAL STATISTICS, 1967," FOR COWS AND HEIFERS 2 YEARS AND OLDER, KEPT FOR MILK.

1925-70, U.S. AVERAGE OF MILK COWS ON FARMS FOR PREVIOUS YEAR, EXCLUDING HEIFERS NOT YET FRESH. ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA).

1971-79, U.S. MILK COWS THAT HAVE CALVED JANUARY 1 OF STATED YEAR. ESTIMATED BY THE STATISTICAL REPORTING SERVICE (USDA) AND PUBLISHED IN "CATTLE." FINAL ESTIMATES FOR 1971-75 ARE IN "STATISTICAL BULLETIN 589." DATA FOR 1976-79 ARE PRELIMINARY.

5/ LESS THAN 0.05 PERCENT.

6/ ESTIMATED.

7/ DATE FOR COLLECTING DATA CHANGED IN 1924 FROM JULY 1 TO JANUARY 1, SO 1924 DATA WERE OMITTED.

8/ OWNER-SAMPLER TABULATION BEGAN IN 1956.

9/ WEIGH-A-DAY-A-MONTH TABULATION BEGAN IN 1957.

10/ AVERAGES FOR 1959 AND 1961. NATIONAL TESTING YEAR CHANGED IN 1960 TO BEGIN MAY 1.

TABLE 30.--SUMMARY OF NONOFFICIAL DAIRY RECORDKEEPING PLANS FOR WHICH PRODUCTION AVERAGES ARE CALCULATED, 1956-83 1/ 2/

YEAR	HERDS ENROLLED	COWS ENROLLED	COWS PER HERD	COWS ENROLLED	HERDS REPORTED	COWS REPORTED	AVERAGE PRODUCTION MILK	FAT	FAT
	NUMBER	NUMBER	NUMBER	PCT	NUMBER	NUMBER	LB	PCT	LB
1956------	17,110	374,479	21.9	1.8	---	---	---	---	---
1957------	20,778	405,090	19.5	2.0	---	---	---	---	---
1958------	21,269	490,001	23.0	2.5	---	---	---	---	---
1959------	22,807	549,916	24.1	2.9	---	---	---	---	---
1960------	24,274	615,899	25.4	3.4	---	---	---	---	---
1961------	24,498	655,885	26.8	3.7	---	---	---	---	---
1962------	24,954	698,302	28.0	4.1	---	---	---	---	---
1963------	25,376	726,478	28.6	4.3	14,761	423,545	10,606	3.73	396
1964------	25,598	752,229	29.4	4.6	13,574	385,493	10,885	3.71	404
1965------	26,604	818,406	30.8	5.2	18,409	559,608	11,402	3.71	423
1966------	26,259	839,838	32.0	5.6	19,172	598,133	11,472	3.70	425
1967------	25,439	825,127	32.4	5.9	17,912	575,816	11,607	3.72	432
1968------	25,143	847,485	33.7	6.3	17,318	592,647	11,847	3.72	441
1969------	24,359	842,330	34.6	6.6	17,908	614,939	11,932	3.72	444
1970------	23,281	839,343	36.1	6.8	16,971	611,819	12,185	3.72	453
1971------	22,581	836,751	37.1	7.0	16,569	612,080	12,413	3.71	460
1972------	21,345	805,555	37.7	6.8	16,107	618,088	12,544	3.74	466
1973------	20,895	806,270	38.6	6.9	16,183	631,269	12,488	3.75	468
1974------	19,738	783,195	39.7	6.9	16,037	639,964	12,353	3.75	463
1975------	18,112	749,807	41.4	6.7	14,704	610,910	12,503	3.80	475
1976------	19,999	943,451	47.2	8.5	16,784	753,089	13,104	3.79	497
1977------	21,000	1,006,359	47.9	9.1	17,662	815,988	13,539	3.76	509
1978------	22,626	1,159,776	51.3	9.7	18,675	891,738	13,771	3.75	516
1979------	22,745	1,201,500	52.8	11.1	19,248	933,631	13,847	3.77	522
1980------	22,943	1,225,311	53.4	11.1	19,328	953,595	13,969	3.77	527
1981------	23,451	1,282,715	54.7	11.5	19,617	980,870	14,080	3.76	529
1982------	24,940	1,407,203	56.4	12.7	21,037	1,105,418	14,177	3.74	530
1983------	25,173	1,406,677	55.8	12.6	21,585	1,143,728	14,213	3.76	534

1/ DASHES INDICATE DATA NOT TABULATED OR AVAILABLE. OWNER-SAMPLER PLAN BEGAN IN 1956. STARTING IN 1976, ALL DATA ARE FOR THE FOLLOWING NONOFFICIAL PLANS: OWNER-SAMPLER (EXCLUDING OS-BAF AND OS-PTF), ALTERNATE AM-PM, COMMERCIAL, BIMONTHLY, AND TRIMONTHLY.

2/ HERDS AND COWS ARE ENROLLED AS OF JANUARY 1 OF THE STATED YEAR. FROM 1981 ON, THE REPORTED HERDS AND COWS AND AVERAGE PRODUCTION WILL BE FOR THE CALENDAR YEAR IMMEDIATELY PRECEDING THE STATED YEAR.

TABLE 31.--EXTENSION DAIRY SPECIALISTS ADVISING ON THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM AS OF JANUARY 1, 1983

ALABAMA---------HOWARD S. JONES, DEPT. OF ANIMAL AND DAIRY SCIENCE, AUBURN UNIVERSITY, AUBURN 36830.

ALASKA----------ARTHUR L. BRUNDAGE, AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF ALASKA, PALMER 99645.

ARIZONA---------DENNIS V. ARMSTRONG, DEPT. OF ANIMAL SCIENCES, UNIVERSITY OF ARIZONA, TUCSON 85721.

ARKANSAS--------RALPH WILLIAMS, COOPERATIVE EXTENSION SERVICE, P.O. BOX 391, LITTLE ROCK 72203.

CALIFORNIA------FRANK D. MORRILL, ANIMAL SCIENCE EXTENSION, UNIVERSITY OF CALIFORNIA, DAVIS 95616.

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Dairy Herd Improvement Letter

STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES BY BREED FOR COWS ON OFFICIAL TEST, CALVING IN 1981

By Rex L. Powell[1]

Dairy records processing centers provide lactation records to USDA for research that includes genetic evaluations. Records only from cows on official test are used in genetic evaluations. Nearly half of the official records are not used. Most of them are from grade cows and are not usable because of missing sire identification and failure to pass other USDA edits.[2] [3]

This report incorporates for the first time two changes in the procedures for compiling data: (1) Projection of **all** lactation records of fewer than 305 days to 305 days regardless of the reason for termination and (2) compilation of data after the January Sire Summary run. Projection of records terminated by dry dates will raise average yield over that from the previous procedure, which did not project such records. If averages in this article are compared with averages for previous years, differences in data adjustment should be considered. The projection of all records to 305 days has been estimated to increase averages by 100 to 200 pounds for milk yield and 5 to 8 pounds for fat yield. Whereas yield averages are higher because of this change in projection of records, numbers of records may be slightly lower because of the different date for compiling data. Lactation averages usually were compiled after the July Sire Summary run, but doing this after the January run made them available 6 months earlier. Table 1 gives the results on which the decision to change the date for compiling data was based. Including information for the additional 6 months increased numbers of records only slightly and had little effect on yield averages. In general, fewer records will be included in this report now than if data were compiled 6 months later.

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R., and King, G. J. Counts of 305-day lactation records excluded from genetic evaluations for 1982. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 59(2), pp. 1-4. 1983.

[3] U.S. Department of Agriculture. Editing of lactation records used in USDA-DHIA genetic evaluations of sires and cows. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS-44-222, 46(6), 32 pp. 1970.

The number and average standardized yields of lactation records initiated in 1981 and eligible to contribute to genetic evaluations[4] are reported by State in table 2 for Ayrshire, Guernsey, and Holstein cows and in table 3 for Jersey, Brown Swiss, and Milking Shorthorn cows. Records were standardized for age and month of calving[5] and times milked per day.[6] Records of fewer than 305 days were projected to 305 days.[7] Thus, the averages presented are on a 305-day, two-times-a-day, mature-equivalent basis. Fat percentages were computed from the average standardized milk and fat yields.

Tables 2 and 3 were compared with corresponding tables for 1980 calvings.[8] Numbers of records increased by 5 percent overall and for Holsteins, Jerseys, and Milking Shorthorns. Brown Swiss numbers increased by 6 percent, but part of that increase is due to records temporarily unavailable for 1980 data because changes in pedigree information were being made. The number of Ayrshire records declined by 1 percent, and the number of Guernsey records declined by 5 percent. Average milk and fat yields increased for all breeds. Fat percentage generally increased slightly.

The national averages for alternate years from 1971 through 1981 are given in table 4. The total number of records increased by 58 percent since 1971.[9] Increases were 72 percent for Holsteins and 25 to 29 percent for Jerseys, Brown Swiss, and Milking Shorthorns. Ayrshires essentially have maintained their numbers, whereas Guernseys have decreased by 38 percent. Increases in milk yield since 1971 were from 1,140 (Brown Swiss) to 2,308 pounds (Holsteins). Fat yield has increased but not in proportion to milk yield because of a decrease in fat percentage since 1971 for all breeds, particularly Jerseys. Changes in numbers of records and averages for particular State and breed combinations may be studied by comparing tables 2 and 3 with tables in the report[8] for 1980 and in corresponding publications for earlier years.

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[4] Because some lactation data included here may have been from cows without herdmate records, their records were not used in genetic evaluations.

[5] Norman, H. D., Miller, P. D., McDaniel, B. T., and others. USDA-DHIA factors for standardizing 305-day lactation records for age and month of calving. U.S. Dept. Agr. ARS-NE-40, 91 pp. 1974.

[6] Wiggans, G. R., and Grossman, M. Adjusting records from three-times-a-day to two-times-a-day milking basis. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(4), pp. 7-8. 1980.

[7] Wiggans, G. R., and Powell, R. L. Projection factors for milk and fat lactation records. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(1), 15 pp. 1980.

[8] Powell, R. L. State and national standardized lactation averages by breed for cows on official test, calving in 1980. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 59(2), pp. 5-11. 1983.

[9] The earliest year for which records with missing sire identification were excluded when computing averages is 1971.

Information for cows of the Red and White breed is not included in the tables because of the small number of cows. Nationally, the 1,240 Red and White cows averaged 16,152 pounds of milk, 3.62 percent fat, and 584 pounds of fat. The averages for 1,001 cows in 1980 were 15,816 pounds of milk, 3.62 percent fat, and 573 pounds of fat.

Interpretation of changes in average yield should be made in view of the many factors that can affect it. Although genetic change is expected to have a positive effect on yield, the feed availability and cost, milk and beef prices, and characteristics of herds entering and leaving official testing programs can affect the averages in either direction.

Table 1.--Number of records and national average yield from July 1982 Sire Summary run and changes from January 1982 run by breed for cows calving in 1980

	July 1982			Change from January 1982		
Breed	Records	Milk yield	Fat yield	Records	Milk yield	Fat yield
	Number	*Pounds*	*Pounds*	*Number*	*Pounds*	*Pounds*
Ayrshire----------------	19,802	12,724	493	+34	+4	0
Guernsey---------------	51,350	11,404	526	+335	+6	0
Holstein----------------	1,389,045	17,049	614	+5,885	-5	-1
Jersey------------------	88,539	11,122	536	-49	0	0
Brown Swiss------------	24,891	13,854	557	[1] -1,008	-1	0
Milking Shorthorn------	3,234	11,833	431	+28	-38	+1

[1] Many Brown Swiss records were recycled because of pedigree record corrections made by the breed association.

Table 2.--Number of records and State and national standardized lactation averages for Ayrshire, Guernsey, and Holstein cows on official test, calving in 1981, and with identified sires[1]

State[2]	Ayrshire				Guernsey				Holstein			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	47	12,843	3.77	484	93	10,593	4.25	451	5,808	16,438	3.55	583
Alaska	---	---	---	---	---	---	---	---	65	14,777	3.80	562
Arizona	---	---	---	---	502	12,309	4.66	574	10,195	18,492	3.61	667
Arkansas	---	---	---	---	181	10,371	4.25	441	4,161	15,751	3.38	532
California	254	14,856	3.89	577	2,332	13,138	4.62	607	166,836	19,390	3.58	695
Colorado	9	13,597	3.62	485	248	10,053	4.50	452	11,607	16,798	3.54	594
Connecticut	512	12,861	4.02	518	469	12,108	4.63	561	14,192	17,668	3.63	641
Delaware	85	14,353	4.19	601	8	12,934	4.88	631	2,328	18,289	3.63	663
Florida	218	11,585	3.52	408	188	11,102	4.26	473	4,144	16,391	3.38	555
Georgia	162	12,730	3.57	454	727	11,815	4.55	538	11,445	16,197	3.49	565
Hawaii	---	---	---	---	---	---	---	---	1,308	15,596	3.12	486
Idaho	83	12,325	3.89	479	336	11,345	4.69	531	13,531	17,416	3.51	611
Illinois	505	12,013	3.87	465	1,250	10,898	4.62	503	35,674	16,215	3.64	590
Indiana	366	13,122	3.95	519	2,816	11,363	4.76	541	27,623	16,836	3.68	619
Iowa	1,265	12,391	3.86	479	1,980	10,881	4.70	511	35,924	16,135	3.60	581
Kansas	466	11,743	3.81	448	557	10,822	4.54	492	26,430	15,758	3.57	563
Kentucky	275	11,030	3.84	424	235	10,606	4.61	489	11,397	15,996	3.58	572
Louisiana	81	10,409	3.60	375	1,022	10,296	4.33	446	7,719	15,547	3.32	517
Maine	502	12,585	3.87	488	251	11,999	4.57	549	15,171	17,553	3.56	625
Maryland	692	11,405	3.90	445	1,125	10,957	4.62	507	31,880	16,830	3.61	607
Massachusetts	511	12,553	3.93	493	338	12,109	4.60	557	11,987	17,327	3.63	629
Michigan	215	11,192	4.00	448	1,840	11,680	4.70	549	56,884	17,509	3.63	635
Minnesota	1,252	12,259	3.89	476	4,272	10,804	4.64	501	125,645	16,364	3.61	591
Mississippi	167	11,467	3.66	419	209	11,399	4.44	506	6,599	15,899	3.46	550
Missouri	94	11,865	3.73	443	1,663	10,664	4.53	484	23,060	16,188	3.54	573
Montana	172	13,734	3.70	508	71	13,070	4.78	624	2,416	16,862	3.50	590
Nebraska	190	11,031	3.98	439	490	10,907	4.59	501	13,415	15,680	3.62	567
Nevada	---	---	---	---	---	---	---	---	2,487	17,965	3.53	634
New Hampshire	539	13,393	3.88	519	116	11,726	4.44	520	8,011	17,514	3.61	632
New Jersey	22	13,556	3.87	524	148	11,559	4.64	536	9,114	17,906	3.62	649
New Mexico	197	14,801	3.75	555	399	12,781	4.32	553	9,004	18,977	3.51	666
New York	3,240	13,045	3.92	511	1,782	11,625	4.61	536	145,593	17,383	3.63	632
North Carolina	238	14,211	3.76	534	492	11,580	4.72	547	29,049	17,197	3.54	609
North Dakota	2	12,235	4.41	540	17	8,562	4.75	407	3,311	15,182	3.53	536
Ohio	1,269	12,631	3.88	490	2,406	11,794	4.66	549	51,038	17,522	3.65	639
Oklahoma	290	13,197	3.98	526	366	11,204	4.71	527	7,509	16,753	3.63	608
Oregon	179	13,243	3.93	521	980	12,004	4.55	546	13,561	17,997	3.57	642
Pennsylvania	1,341	13,648	3.93	537	4,745	11,952	4.60	550	143,167	17,491	3.65	639
Puerto Rico	2	9,405	3.24	305	---	---	---	---	1,878	11,396	3.18	363
Rhode Island	146	12,987	3.84	499	25	7,675	4.58	352	638	17,043	3.62	617
South Carolina	---	---	---	---	1,691	12,078	4.64	560	8,460	16,616	3.59	596
South Dakota	2	9,710	3.82	371	55	11,590	4.85	562	6,936	15,735	3.55	559
Tennessee	94	12,290	3.83	471	584	11,449	4.38	501	15,303	17,280	3.50	605
Texas	16	12,013	3.91	470	382	11,131	4.53	505	17,399	17,219	3.44	593
Utah	9	10,936	3.88	424	8	11,127	4.70	522	14,556	17,756	3.41	605
Vermont	1,433	13,193	3.81	502	475	11,657	4.53	528	31,990	17,069	3.56	607
Virginia	638	13,461	3.80	511	1,578	11,247	4.58	515	53,542	16,833	3.56	599
Washington	355	14,201	3.96	563	1,961	12,386	4.71	583	29,814	18,530	3.50	649
West Virginia	315	12,127	3.79	459	222	9,768	4.54	443	7,515	16,151	3.52	568
Wisconsin	1,176	12,738	3.92	499	6,881	11,404	4.76	542	173,816	17,011	3.73	634
Wyoming	---	---	---	---	22	14,635	4.46	652	851	16,354	3.37	551
United States	19,626	12,790	3.88	496	48,538	11,509	4.64	533	1,461,986	17,292	3.61	624

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[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 3.--Number of records and State and national standardized lactation averages for Jersey, Brown Swiss, and Milking Shorthorn cows on official test, calving in 1981, and with identified sires[1]

State[2]	Jersey				Brown Swiss				Milking Shorthorn			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	2,457	12,470	4.62	576	114	12,751	3.99	508	11	13,913	3.82	532
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	1,098	12,787	5.13	656	848	15,839	3.95	626	61	13,553	3.42	463
Arkansas	840	9,968	4.66	464	165	14,115	3.89	549	66	13,183	3.63	478
California	8,289	12,545	5.01	628	1,003	15,978	4.09	653	140	14,276	3.57	510
Colorado	236	11,425	4.67	534	595	13,558	4.19	567	---	---	---	---
Connecticut	421	11,194	4.97	556	254	13,779	3.97	548	20	11,089	3.44	382
Delaware	63	11,281	4.80	541	4	17,795	4.29	763	---	---	---	---
Florida	942	11,481	4.39	503	346	13,891	3.66	507	---	---	---	---
Georgia	1,755	10,754	4.58	493	342	14,148	3.69	522	---	---	---	---
Hawaii	---	---	---	---	---	---	---	---	---	---	---	---
Idaho	1,188	11,090	4.81	533	143	14,767	3.87	572	60	13,237	3.64	481
Illinois	1,001	9,747	4.80	468	1,388	12,918	4.02	519	233	11,779	3.52	415
Indiana	1,729	10,770	4.92	530	833	14,717	4.05	597	95	11,559	3.74	432
Iowa	2,392	10,639	4.76	507	3,066	13,320	4.04	539	405	11,358	3.63	413
Kansas	715	9,808	4.60	451	398	13,128	3.91	513	14	11,539	3.53	406
Kentucky	2,151	11,119	4.79	532	286	13,099	3.83	501	20	9,525	3.63	346
Louisiana	2,199	10,480	4.54	476	121	11,233	3.64	409	---	---	---	---
Maine	1,491	12,461	4.81	599	107	13,041	3.92	511	111	11,202	3.55	397
Maryland	510	9,343	4.78	447	289	13,315	4.00	533	37	9,879	3.67	362
Massachusetts	1,187	11,338	4.94	560	76	12,895	3.90	503	39	10,961	3.72	408
Michigan	1,969	11,373	4.94	561	350	13,428	3.94	529	63	12,286	3.53	433
Minnesota	2,709	10,347	4.86	502	1,564	13,741	4.02	553	570	12,930	3.67	474
Mississippi	1,956	10,677	4.57	487	6	12,162	3.90	474	---	---	---	---
Missouri	1,734	10,928	4.73	517	622	12,893	3.99	514	141	12,622	3.66	461
Montana	12	11,839	4.64	550	50	15,005	4.09	613	---	---	---	---
Nebraska	163	9,890	4.76	470	581	13,385	4.15	555	214	8,834	3.71	328
Nevada	454	13,451	4.79	644	1	12,670	3.51	445	---	---	---	---
New Hampshire	1,063	11,208	4.83	541	145	12,202	3.98	485	33	11,550	3.57	412
New Jersey	262	13,342	4.63	618	134	13,466	3.98	536	---	---	---	---
New Mexico	3	9,600	4.00	384	22	11,605	4.06	472	---	---	---	---
New York	4,951	11,062	4.96	548	1,609	14,029	4.01	563	29	12,151	3.59	437
North Carolina	2,359	11,483	4.78	548	293	13,931	4.04	563	---	---	---	---
North Dakota	99	9,521	4.81	458	146	13,579	4.09	556	1	13,800	4.32	596
Ohio	5,489	11,011	4.95	545	1,698	14,907	4.11	612	205	11,202	3.67	411
Oklahoma	899	10,701	4.83	517	452	12,804	4.03	517	233	12,864	3.55	457
Oregon	3,784	11,842	4.91	581	746	13,972	4.04	565	11	16,985	3.59	611
Pennsylvania	5,005	11,130	4.78	533	904	15,140	3.98	602	58	10,799	3.68	398
Puerto Rico	---	---	---	---	18	11,914	3.27	389	---	---	---	---
Rhode Island	39	10,857	4.79	520	---	---	---	---	---	---	---	---
South Carolina	4,790	11,790	4.76	561	38	11,442	3.68	421	---	---	---	---
South Dakota	111	9,949	4.81	479	464	12,578	4.03	506	116	10,401	3.54	368
Tennessee	4,448	11,492	4.62	531	446	14,645	3.91	572	2	17,490	4.34	759
Texas	5,085	10,568	4.74	501	1,257	14,542	4.02	584	45	12,907	3.69	476
Utah	666	11,620	4.75	552	120	14,201	3.88	551	1	20,180	3.88	783
Vermont	6,239	11,375	4.81	547	143	15,560	3.98	620	37	12,162	3.60	437
Virginia	801	11,720	4.76	557	121	13,689	3.96	541	10	12,125	3.46	419
Washington	3,337	12,467	5.01	624	186	15,078	3.96	598	43	14,738	3.47	511
West Virginia	319	11,650	4.53	527	16	12,431	3.98	494	---	---	---	---
Wisconsin	3,533	10,524	5.00	526	3,982	13,806	4.12	568	285	12,069	3.64	439
Wyoming	25	11,326	4.91	556	1	8,970	3.73	335	---	---	---	---
United States	92,968	11,329	4.83	547	26,493	13,950	4.03	562	3,409	11,983	3.62	434

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 4.--Number of records and national average yield by breed for cows calving in 1971-81

Breed	Year of calving						Change, 1971-81	
	1971	1973	1975	1977	1979	1981	Amount	Percentage
				Records (number)				
Ayrshire	19,478	18,683	18,695	19,467	19,466	19,626	+148	+0.8
Guernsey	78,691	69,680	62,149	56,246	51,579	48,538	-30,153	-38.3
Holstein	850,379	919,735	1,014,257	1,143,648	1,271,996	1,461,986	+611,607	+71.9
Jersey	74,132	71,557	71,812	76,785	83,164	92,968	+18,836	+25.4
Brown Swiss	21,001	21,057	21,635	23,553	24,213	26,493	+5,492	+26.2
Milking Shorthorn	2,635	2,442	2,648	2,693	3,016	3,409	+774	+29.4
				Milk (pounds)				
Ayrshire	11,457	11,322	11,730	12,167	12,492	12,790	+1,333	+11.6
Guernsey	10,231	10,133	10,573	11,003	11,231	11,509	+1,278	+12.5
Holstein	14,984	14,837	15,528	16,354	16,792	17,292	+2,308	+15.4
Jersey	9,528	9,588	10,150	10,546	10,887	11,329	+1,801	+18.9
Brown Swiss	12,810	12,658	13,063	13,502	13,676	13,950	+1,140	+8.9
Milking Shorthorn	10,217	10,182	10,596	11,448	11,497	11,983	+1,766	+17.3
				Fat (percent)				
Ayrshire	3.91	3.90	3.90	3.89	3.88	3.88	-.03	-.8
Guernsey	4.66	4.62	4.61	4.59	4.63	4.64	-.02	-.4
Holstein	3.63	3.64	3.65	3.61	3.61	3.61	-.02	-.6
Jersey	4.99	4.94	4.90	4.83	4.84	4.83	-.16	-3.2
Brown Swiss	4.03	3.99	3.97	3.96	4.01	4.03	.00	0
Milking Shorthorn	3.66	3.64	3.64	3.61	3.63	3.62	-.04	-1.1
				Fat (pounds)				
Ayrshire	448	442	457	473	484	496	+48	+10.7
Guernsey	477	469	487	506	519	533	+56	+11.7
Holstein	545	540	566	591	606	624	+79	+14.5
Jersey	476	473	497	510	527	547	+71	+14.9
Brown Swiss	516	505	519	535	548	562	+46	+8.9
Milking Shorthorn	374	371	386	414	418	434	+60	+16.0

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Dairy Herd Improvement Letter

Vol. 59, No. 5

December 1983

NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

- USDA Summary of 1982 U.S. Cow Herd Averages
- USDA Summary of 1982 U.S. Goat Herd Averages
- Changes in the AIPL Genetic Evaluation Procedures

U.S. Department of Agriculture
Agricultural Research Service

UNIVERSITY OF ILLINOIS
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Dairy Herd Improvement Letter

USDA SUMMARY OF 1982 U.S. COW HERD AVERAGES

By Gerald J. King and George R. Wiggans [1]

The U.S. Department of Agriculture (USDA) received 60,384 cow herd records for 1982 from 9 dairy records processing centers (DRPC's). These DRPC's process records of cows enrolled in the National Cooperative Dairy Herd Improvement Program (NCDHIP). Records from 37,597 herds, including 3,182,229.6 cow-years, on official NCDHIP test passed USDA edits (see appendix) and are summarized in this report. Records from 21,938 herds, including 1,215,129.5 cow-years, on nonofficial NCDHIP test also are summarized. Cow-years are calculated by dividing all days on test, including dry days, by 365. For 1982, records for 179,524.0 more cow-years and 1,502 more herds were summarized than for 1981. The number of cows represented in herd averages is closer to the number of cows enrolled in NCDHIP than in previous years because of the lower rate of increase in enrollment last year.[2] The numbers of cow-years and herds included are less than total enrollment primarily because a herd must be on test for 365 days to have a herd-average record.

Tables 1-2, 6-8, and 10 include information on milk yield for all herds and on fat or protein yield for herds with fat or protein yield reported that is within limits (see appendix). Records for 16,197 herds with 1,129,522.1 cow-years had acceptable protein data. Solids-not-fat (SNF) yield was summarized (table 3), and 713 herds with 238,827.4 cow-years had acceptable SNF data. The sharp increase in herds and cows with protein or SNF yields reported is due in part to changes in the editing limits imposed on the data. This year all DRPC's restricted data on protein or SNF testing to data from herds on component testing for the entire test year, which made easing the limits appropriate.

Information on amount of feed, feed cost, and income, in addition to milk and fat yields, was reported only by the Iowa, New York, North Carolina, and Pennsylvania DRPC's. Therefore, records with feeding and other information were available only for slightly less than half the total number of herds summarized. Records with missing or unreasonable amounts of feed, feed costs, or value of product also were not included in averages for herd records with feeding and other information contained in table 4.

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[1] Dairy scientist and research geneticist (animal), respectively, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Norman, H. D., Myers, E. F., and Dickinson, F. N. National Cooperative Dairy Herd Improvement Program participation report--State activities as of January 1, 1983. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 59(3), 28 pp. 1983.

Herd and cow-year numbers and averages reported in State newsletters may differ from values reported here because of differences in limits or reporting periods.

State Averages for Milk Production

Table 1 summarizes all official records for milk, fat, and protein. No records for herds enrolled in official plans were reported for the Virgin Islands. There were 907 more herds and 134,969.6 more cow-years summarized in 1982 than in 1981, with an average milk yield of 15,274 pounds in 1982 compared with an average of 15,134 pounds in 1981. The number of cow-years per herd averaged 84.6. California again had the highest average milk yield with 1,278 herds averaging 16,929 pounds. Washington was second with 621 herds averaging 16,921 pounds; New Mexico, third with 59 herds averaging 16,894 pounds; and Arizona, fourth with 122 herds averaging 16,576 pounds. Thirty-five States had average milk yields above 14,000 pounds, the same number as for 1981.

Average fat yield for herds with records passing edits for fat yield or percentage (records from 49 herds were eliminated) was 564 pounds, 6 pounds more than in 1981, and average fat percentage was 3.69, 0.01 higher than in 1981. Herds with protein data included 779,172.7 cow-years (24 percent of all official cow-years) and averaged 15,444 pounds of milk, 575 pounds of fat, and 506 pounds of protein (3.27 percent).

Table 2 summarizes all nonofficial records for milk, fat, and protein. Puerto Rico, Rhode Island, and Wyoming had no nonofficial records summarized. There were 595 more herds and 44,554.5 more cow-years summarized in 1982 than in 1981. The average number of cow-years per herd was 55.4. Cows on nonofficial test averaged 14,138 pounds of milk compared with 14,101 pounds in 1981. Alaska again had the highest average milk yield with 1 herd averaging 16,949 pounds. Washington was second with 70 herds averaging 15,619 pounds; Idaho, third with 35 herds averaging 15,408 pounds; and California, fourth with 97 herds averaging 15,349 pounds. Thirty-three States (3 less than for 1981) had average milk yields for nonofficial herds above 13,000 pounds.

Records from 353 herds did not include fat production. Average fat yield was 534 pounds for those herds reporting fat yield, 4 pounds more than in 1981, and average fat percentage was 3.76, 0.02 higher than in 1981. Records with protein data were from 350,349.4 cow-years (29 percent of all nonofficial cow-years) and averaged 14,532 pounds of milk, 542 pounds of fat, and 461 pounds of protein (3.17 percent).

Table 3 is a summary of SNF records reported for both official and nonofficial plans. Nine States--Alaska, California, Idaho, Iowa, Montana, Nevada, North Dakota, Oregon, and Utah--reported records that passed edits, with an average SNF of 1,524 pounds (8.83 percent). California leads the group with 685 herds.

State Averages for Records With Feed, Cost, and Value Information

Table 4 is a summary of herds on official test for which feed, feed cost, and value of product were reported. Official herds averaged 73.4 cow-years per herd, 0.9 more than in 1981, with 14,583 pounds of milk compared with 14,548 in 1981 and 535 pounds of fat, the same as for 1981. Average value of product was $1,992 and average feed cost was $773, which resulted in an average income over feed cost for official records of $1,218, $10 higher than in 1981.

Table 5 is a summary of herds on nonofficial test for which feed, feed cost, and value of product were reported. Nonofficial herds averaged 61.7 cow-years per herd, 0.3 more than in 1981, with 13,896 pounds of milk compared with 13,954 in 1981 and 449 pounds of fat compared with 512 in 1981. Average value of product was $1,878 and average feed cost was $723, which resulted in an average income over feed cost for nonofficial records of $1,155, $5 lower than in 1981.

For some of the herds summarized, the total ration did not include all four types of feed (concentrates, succulent forage, dry forage, and pasture). However, the averages for feed, cost, and value of product were calculated from all herds for which feeding information was reported. The averages reflect the contribution of each feed to the total ration. The national percentage of cows fed each feed is included in the footnotes for each table.

Breed Averages

Table 6 summarizes averages by breed and type of plan. Holsteins comprise 88.5 percent of herds and 91.7 percent of cow-years in official plans; they comprise 93.6 percent of herds and 95.5 percent of cow-years in nonofficial plans. Compared with 1981, only three breeds and the mixed-breed group increased in numbers of herds, with Holsteins increasing the most.

Table 7 summarizes herds by milk level within breed for all official and nonofficial records. For Holsteins, the modal group for milk yield was 15,000-15,999 pounds (the same as for 1981) with 9,119 herds. The highest milk yield for any herd was 25,150 pounds for a Holstein herd. In table 8, herds are summarized by herd size within breed for all official and nonofficial records. For Holsteins, the modal group was 25-49.9 cows per herd (the same as for 1981) with 21,383 herds.

Test Plan Averages

Table 9 summarizes herds and cow-years by breed within type of test. For all breeds except Brown Swiss and Milking Shorthorn, the most herds and cow-years were enrolled in DHI. For Brown Swiss and Milking Shorthorns, the most herds and cow-years were enrolled in DHIR; DHIR also was the second largest plan for Ayrshires and Jerseys for herds and cow-years and for Guernseys for cow-years. The DHI plan was second largest for Brown Swiss and Milking Shorthorns. The OS plan was second largest for Holsteins, Guernseys, Red and Whites, and mixed breeds for herds and for Holsteins and Red and Whites for cow-years.

Table 10 summarizes records with milk, fat, and protein by testing plan. Increased enrollment in DHI AP plans, DHIR, OS-AP, and SS-AP was responsible for most of the increase in number of herds from 1981 to 1982. Only DHI and OS had major decreases in number of herds enrolled.

Three-Times-a-Day Milking

Number and percentage of herds and cows milked three times a day (3X) are in table 11 as reported by the DRPC's. For 1982, all DRPC's but Pennsylvania included information on 3X milking in their herd-average records. Herds milked 3X are usually large as indicated by the difference between the percentages of herds and cow-years. The latter is over twice the former. Milking 3X is most frequent in the Western States.

Summaries Over Years

Tables 12-16 summarize cow-year data for official and nonofficial plans by test year. Cow-year totals and averages for milk and fat are summarized by test year from 1939-40 to 1982 for all official herd records in table 12 and for all official herd records with feeding and other information in table 13. Cow-year totals and averages for milk and fat are summarized by test year from 1962-63 to 1982 for all nonofficial herd records in table 14 and for all nonofficial herd records with feeding and other information in table 15. Table 16 compares yield of cows on official test, cows on nonofficial test, and all other cows by test year from 1962-63 to 1982. In 1982, cows in official plans produced 5,039 pounds more milk and cows in nonofficial plans, 3,972 pounds more milk than did cows not enrolled in NCDHIP.

Table 17 summarizes yield and value of product for all cows in the United States as estimated by the Statistical Research Service, USDA.

Appendix

The following edits were applied by USDA to 1982 herd-average data:

Characteristic:	Acceptable values
Record code	All codes except 9
Year	1982
State	U.S. State and territory prefix codes
Herd size	5 or more cow-years
Milk (pounds)	4,000-28,000 unless verified
Fat (pounds)	92-1,200 unless verified
Fat (percent):	
Ayrshire	2.7-6.0
Brown Swiss	2.7-6.0
Guernsey	3.3-6.7
Holstein	2.5-5.0
Jersey	3.3-7.3
Milking Shorthorn	2.7-5.9
Other breeds	2.5-7.3
Protein (pounds)	60-1,050
Protein (percent)	2.5-4.5
SNF (pounds)	322-2,300
SNF (percent)	8.1-10.2
Concentrate (cwt)	0-180 unless verified
Succulent forage (cwt)	0-475
Dry forage (cwt)	0-200
Pasture (days)	0-366
Cost of concentrate per cwt	\$1.20-\$12
Value of product	\$260-\$3,800
Feed cost per cwt of milk	\$1.25-\$11 (Total feed cost cannot be greater than value of product.)

Table 1.--State and national cow-year totals and averages for all official herd records for milk, fat, and protein, 1982

State[1]	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Percent*	*Pounds*
Alabama	193	23,909.8	13,284	193	23,909.8	13,284	3.69	490	16	2,175.4	12,515	520	3.57	447
Alaska	1	66.4	14,438	1	66.4	14,438	3.68	531	---	---	---	---	---	---
Arizona	122	49,904.8	16,576	122	49,904.8	16,576	3.85	639	---	---	---	---	---	---
Arkansas	190	12,470.9	13,042	188	12,387.0	13,056	3.52	459	2	179.5	13,090	492	3.47	454
California	1,278	483,036.8	16,929	1,278	483,036.8	16,929	3.71	627	52	11,325.9	12,605	596	3.70	467
Colorado	224	30,534.5	15,325	224	30,534.5	15,325	3.62	555	204	27,688.5	15,396	558	3.39	522
Connecticut	284	23,915.2	16,100	284	23,915.2	16,100	3.68	593	37	2,378.2	16,065	595	3.29	529
Delaware	46	4,220.6	16,425	46	4,220.6	16,425	3.73	613	3	113.4	15,158	622	3.22	488
Florida	66	19,906.7	13,604	61	18,344.6	13,589	3.34	454	3	524.1	10,127	409	3.67	371
Georgia	310	38,472.3	13,508	302	37,041.8	13,523	3.61	488	32	3,800.7	12,898	468	3.35	432
Hawaii	7	3,750.4	13,127	7	3,750.4	13,127	3.21	421	---	---	---	---	---	---
Idaho	477	49,054.3	15,163	477	49,054.3	15,163	3.63	550	222	21,726.6	14,992	549	3.24	486
Illinois	1,159	69,766.9	14,374	1,159	69,766.9	14,374	3.69	530	31	1,443.3	13,548	548	3.43	465
Indiana	889	55,084.4	14,758	889	55,084.4	14,758	3.76	555	418	27,044.0	14,508	544	3.28	476
Iowa	1,342	70,286.5	14,171	1,342	70,286.5	14,171	3.72	527	77	3,879.8	13,061	533	3.48	455
Kansas	708	48,861.1	13,950	708	48,861.1	13,950	3.61	504	---	---	---	---	---	---
Kentucky	501	33,005.3	13,271	501	33,005.3	13,271	3.70	491	34	2,158.1	11,691	512	3.61	422
Louisiana	276	28,539.4	12,332	275	28,484.0	12,326	3.52	434	---	---	---	---	---	---
Maine	422	22,810.5	15,569	422	22,810.5	15,569	3.66	570	34	1,887.0	15,088	620	3.54	534
Maryland	608	53,250.4	14,924	608	53,250.4	14,924	3.67	548	6	756.3	16,983	629	3.20	543
Massachusetts	309	18,064.5	15,294	309	18,064.5	15,294	3.75	574	38	2,152.3	15,001	596	3.39	509
Michigan	1,503	121,566.0	15,680	1,485	120,082.0	15,736	3.67	578	55	3,751.0	15,253	588	3.36	513
Minnesota	4,418	229,488.5	14,894	4,418	229,488.5	14,894	3.72	555	---	---	---	---	---	---
Mississippi	272	27,127.1	12,500	272	27,127.1	12,500	3.62	453	---	---	---	---	---	---
Missouri	826	55,724.4	13,778	826	55,724.4	13,778	3.64	501	---	---	---	---	---	---
Montana	107	9,139.2	14,643	107	9,139.2	14,643	3.57	523	17	1,516.2	14,138	497	3.33	471
Nebraska	461	31,568.1	13,205	461	31,568.1	13,205	3.69	487	2	95.1	12,822	515	3.44	441
Nevada	36	10,489.2	15,614	36	10,489.2	15,614	3.70	577	1	268.2	13,135	653	3.59	472
New Hampshire	216	13,231.6	15,461	216	13,231.6	15,461	3.74	578	53	2,964.3	15,274	599	3.41	521
New Jersey	189	14,394.8	15,931	189	14,394.8	15,931	3.67	585	189	14,394.8	15,931	585	3.25	518
New Mexico	59	31,733.0	16,894	59	31,733.0	16,894	3.58	605	2	492.2	11,889	434	3.49	415
New York	2,893	208,474.0	15,872	2,893	208,474.0	15,872	3.67	583	2,889	208,161.6	15,869	583	3.22	510
North Carolina	603	65,406.5	15,293	596	64,613.9	15,302	3.56	545	31	2,898.9	14,529	589	3.54	515
North Dakota	144	9,451.4	13,027	144	9,451.4	13,027	3.58	467	2	122.1	12,964	495	3.38	439
Ohio	1,602	100,510.4	15,294	1,602	100,510.4	15,294	3.76	575	711	44,408.3	15,224	578	3.13	477
Oklahoma	276	21,795.6	13,969	276	21,795.6	13,969	3.61	505	7	433.1	12,202	494	3.68	449
Oregon	361	41,639.1	15,805	361	41,639.1	15,805	3.78	597	186	21,450.2	16,225	609	3.29	534
Pennsylvania	3,822	224,770.1	15,526	3,822	224,770.1	15,526	3.72	577	181	10,574.6	14,691	581	3.34	491
Puerto Rico	168	31,027.8	8,916	163	30,140.4	8,854	3.06	271	---	---	---	---	---	---
Rhode Island	23	1,360.6	14,162	23	1,360.6	14,162	3.70	523	---	---	---	---	---	---
South Carolina	216	30,330.7	13,842	215	30,199.0	13,831	3.88	537	26	4,289.6	12,487	550	3.71	463
South Dakota	268	17,363.2	13,613	268	17,363.2	13,613	3.64	495	4	266.2	12,693	476	3.41	433
Tennessee	665	60,422.5	14,053	665	60,422.5	14,053	3.68	516	---	---	---	---	---	---
Texas	583	80,381.8	14,072	581	80,131.8	14,074	3.61	508	570	76,696.5	13,984	505	3.41	476
Utah	354	40,499.1	16,121	354	40,499.1	16,121	3.49	562	351	40,140.3	16,121	562	3.26	525
Vermont	966	57,307.7	14,881	966	57,307.7	14,881	3.71	552	148	7,185.4	14,542	572	3.39	492
Virginia	923	88,600.6	15,166	923	88,600.6	15,166	3.61	547	---	---	---	---	---	---
Washington	621	86,159.3	16,921	621	86,159.3	16,921	3.65	618	620	86,030.7	16,924	618	3.29	556
West Virginia	162	12,701.2	14,407	162	12,701.2	14,407	3.61	520	1	67.3	12,388	555	3.87	480
Wisconsin	5,422	318,171.3	15,435	5,422	318,171.3	15,435	3.80	587	2,452	141,994.4	15,463	590	3.23	499
Wyoming	26	2,483.1	14,136	26	2,483.1	14,136	3.56	503	20	1,738.6	14,103	500	3.37	475
United States	37,597	3,182,229.6	15,274	37,548	3,175,552.0	15,280	3.69	564	9,727	779,172.7	15,444	575	3.27	506

[1] Includes Puerto Rico.

Table 2.--State and national cow-year totals and averages for all nonofficial herd records for milk, fat, and protein, 1982

State[1]	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Percent*	*Pounds*
Alabama ----------	6	702.3	13,795	5	439.9	13,434	3.64	489	1	31.8	13,225	462	3.14	415
Alaska -----------	1	74.9	16,949	1	74.9	16,949	3.40	577	---	---	---	---	---	---
Arizona ----------	5	973.8	9,400	5	973.8	9,400	3.55	334	---	---	---	---	---	---
Arkansas ---------	38	4,002.3	14,287	38	4,002.3	14,287	3.56	508	---	---	---	---	---	---
California --------	97	34,168.9	15,349	97	34,168.9	15,349	3.71	569	2	82.2	14,145	541	3.14	445
Colorado ---------	16	3,156.4	14,348	16	3,156.4	14,348	3.72	533	12	1,863.9	14,384	529	3.42	492
Connecticut -------	33	3,115.0	14,661	33	3,115.0	14,661	3.62	530	---	---	---	---	---	---
Delaware ---------	3	389.3	14,846	3	389.3	14,846	3.66	544	---	---	---	---	---	---
Florida -----------	102	39,620.7	12,855	1	86.0	12,611	3.56	449	---	---	---	---	---	---
Georgia ----------	107	17,170.1	12,974	10	667.6	14,150	3.48	493	1	83.3	12,936	498	3.12	403
Hawaii -----------	6	3,829.4	13,589	6	3,829.4	13,589	3.42	465	---	---	---	---	---	---
Idaho -------------	35	5,965.8	15,408	34	5,939.3	15,420	3.59	553	7	1,934.1	14,001	499	3.09	432
Illinois -----------	236	11,647.3	13,344	236	11,647.3	13,344	3.77	503	2	70.0	10,345	419	3.25	336
Indiana -----------	235	13,140.6	13,933	233	12,842.9	14,043	3.64	512	129	7,741.0	14,036	505	3.25	456
Iowa --------------	1,156	54,476.4	12,577	1,156	54,476.4	12,577	3.72	468	10	336.5	10,518	415	3.33	350
Kansas -----------	131	7,078.1	12,881	131	7,078.1	12,881	3.54	456	---	---	---	---	---	---
Kentucky ---------	73	6,032.2	13,153	56	4,626.6	13,336	3.66	489	---	---	---	---	---	---
Louisiana --------	2	108.8	10,502	---	---	---	---	---	---	---	---	---	---	---
Maine ------------	43	3,870.2	14,785	43	3,870.2	14,785	3.60	532	1	27.0	13,363	493	3.17	424
Maryland ---------	47	2,563.8	14,175	47	2,563.8	14,175	3.70	524	---	---	---	---	---	---
Massachusetts ----	19	1,041.6	13,221	19	1,041.6	13,221	3.67	486	1	39.7	13,187	506	3.05	402
Michigan ---------	752	47,828.0	14,519	747	47,585.0	14,547	3.71	540	14	772.0	14,759	574	3.37	498
Minnesota --------	2,278	97,004.1	13,813	2,276	96,873.4	13,813	3.80	525	---	---	---	---	---	---
Mississippi -------	5	535.0	11,973	5	535.0	11,973	3.45	414	---	---	---	---	---	---
Missouri ----------	177	10,340.0	12,680	177	10,340.0	12,680	3.61	457	---	---	---	---	---	---
Montana ---------	10	1,534.0	13,208	10	1,534.0	13,208	3.44	454	2	171.7	13,177	497	3.54	466
Nebraska ---------	64	4,202.2	12,702	64	4,202.2	12,702	3.63	461	---	---	---	---	---	---
Nevada -----------	6	444.2	14,771	6	444.2	14,771	3.73	551	---	---	---	---	---	---
New Hampshire ---	32	2,120.7	14,167	32	2,120.7	14,167	3.63	514	4	92.9	15,239	522	3.34	509
New Jersey -------	40	2,474.3	13,691	40	2,474.3	13,691	3.65	499	36	2,048.5	13,846	503	3.18	440
New Mexico ------	8	2,792.1	15,287	8	2,792.1	15,287	3.57	545	1	96.7	16,257	523	3.31	538
New York ---------	2,993	186,847.9	14,737	2,988	186,656.4	14,736	3.62	533	2,824	171,657.9	14,729	534	3.14	462
North Carolina ---	64	7,507.4	14,441	21	1,952.8	14,683	3.72	546	1	13.9	8,648	439	3.86	334
North Dakota -----	32	2,289.3	12,407	32	2,289.3	12,407	3.68	456	---	---	---	---	---	---
Ohio --------------	651	34,377.0	14,512	651	34,377.0	14,512	3.70	537	224	11,351.3	14,284	530	3.03	432
Oklahoma --------	41	2,821.9	12,740	41	2,821.9	12,740	3.55	452	---	---	---	---	---	---
Oregon -----------	45	4,553.5	14,974	45	4,553.5	14,974	3.71	555	15	1,432.2	14,562	531	3.24	471
Pennsylvania ------	1,987	98,786.8	14,395	1,980	98,084.6	14,401	3.67	528	28	886.5	13,399	508	3.24	435
Rhode Island ------	---	---	---	---	---	---	---	---	---	---	---	---	---	---
South Carolina ----	13	1,240.6	11,803	5	317.8	9,360	4.11	384	---	---	---	---	---	---
South Dakota -----	312	17,201.0	12,778	312	17,201.0	12,778	3.66	467	---	---	---	---	---	---
Tennessee --------	3	477.2	14,484	3	477.2	14,484	4.38	635	1	162.6	14,235	649	3.77	536
Texas ------------	40	6,308.8	12,950	23	3,601.5	13,544	3.56	483	13	1,256.6	13,894	490	3.29	456
Utah -------------	22	2,247.7	14,410	22	2,247.7	14,410	3.55	512	19	1,962.2	14,639	517	3.28	480
Vermont ----------	258	13,960.7	13,606	258	13,960.7	13,606	3.67	500	30	1,497.5	13,301	498	3.26	433
Virginia ----------	39	2,306.8	14,754	39	2,306.8	14,754	3.54	522	---	---	---	---	---	---
Virgin Islands -----	4	536.9	6,788	---	---	---	---	---	---	---	---	---	---	---
Washington -------	70	10,523.9	15,619	70	10,523.9	15,619	3.60	562	64	9,162.8	15,786	570	3.30	522
West Virginia -----	7	292.8	11,666	6	188.4	12,032	3.91	471	---	---	---	---	---	---
Wisconsin --------	9,594	440,446.8	14,253	9,554	438,276.4	14,253	3.89	555	3,028	135,574.6	14,305	556	3.20	458
Wyoming ---------	---	---	---	---	---	---	---	---	---	---	---	---	---	---
United States -----	21,938	1,215,129.5	14,138	21,585	1,143,727.5	14,213	3.76	534	6,470	350,349.4	14,532	542	3.17	461

[1] Includes Virgin Islands.

Table 3.--State and national cow-year totals and averages for official and nonofficial herd records with solids-not-fat information reported, 1982

State	Herds	Cow-years	Cow-years per herd	Milk	Fat	Fat	Solids-not-fat	Solids-not-fat
	Number	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Percent*	*Pounds*
Alaska----------	2	141.3	70.7	15,769	3.52	555	8.35	1,317
California------	685	235,939.9	344.4	17,262	3.68	635	8.84	1,525
Idaho -----------	6	558.6	93.1	15,563	3.69	575	8.75	1,361
Iowa ------------	2	174.9	87.5	16,950	3.63	615	9.23	1,565
Montana--------	3	232.0	77.3	17,834	3.48	620	8.25	1,472
Nevada ---------	7	1,211.3	173.0	17,047	3.58	610	8.56	1,459
North Dakota --	2	70.3	35.2	16,224	3.74	607	8.91	1,445
Oregon ---------	5	337.3	67.5	15,203	3.69	561	8.73	1,327
Utah------------	1	161.8	161.8	16,439	3.42	563	8.60	1,414
United States --	713	238,827.4	335.0	17,252	3.68	635	8.83	1,524

Table 4.--State and national cow-year totals and averages for official herd records with feeding and other information reported, 1982[1]

	Records with milk					Records with fat												
State[2]	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Herds	Cow-years	Milk	Fat	Concentrate[3]	Succulent forage[4]	Dry forage[5]	Pasture days[6]	Cost of concentrate	Feed cost	Feed cost/cwt milk	Value of product	Income over feed cost
	Number	*Number*	*Number*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Cwt*	*Cwt*	*Cwt*	*Number*	*Dol*	*Dol*	*Dol*	*Dol*	*Dol*
Alabama ----------	182	22,544.6	123.9	85	13,358	182	22,544.6	13,358	492	67	11	19	188	530	818	6.25	1,851	1,033
Alaska ------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Arizona -----------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Arkansas----------	189	12,338.8	65.3	83	13,093	187	12,254.9	13,107	461	61	60	45	198	470	718	5.53	1,746	1,028
California---------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Colorado----------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Connecticut-------	270	22,790.9	84.4	86	16,029	270	22,790.9	16,029	592	62	218	16	23	548	888	5.58	2,228	1,340
Delaware ---------	37	2,974.2	80.4	87	16,270	37	2,974.2	16,270	603	60	179	16	19	491	764	4.76	2,260	1,496
Florida------------	62	18,898.4	304.8	85	13,471	58	17,415.7	13,445	449	89	27	11	121	637	883	6.59	2,110	1,227
Georgia -----------	308	38,318.9	124.4	85	13,515	300	36,888.4	13,531	489	70	9	17	144	556	841	6.31	1,934	1,093
Hawaii ------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Idaho--------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Illinois ------------	1,158	69,709.5	60.2	86	14,376	1,158	69,709.5	14,376	531	54	127	36	45	347	660	4.66	1,847	1,187
Indiana------------	856	53,053.9	62.0	87	14,796	856	53,053.9	14,796	556	62	47	32	39	430	782	5.37	1,970	1,188
Iowa---------------	1,341	70,250.6	52.4	86	14,173	1,341	70,250.6	14,173	527	57	113	40	46	333	639	4.58	1,800	1,161
Kansas ------------	707	48,756.0	69.0	85	13,953	707	48,756.0	13,953	504	65	111	45	67	426	748	5.43	1,801	1,054
Kentucky----------	477	31,352.8	65.7	84	13,245	477	31,352.8	13,245	491	55	9	24	115	407	668	5.11	1,739	1,071
Louisiana ---------	271	27,998.2	103.3	85	12,350	270	27,942.8	12,344	435	61	4	27	324	483	719	5.89	1,723	1,004
Maine -------------	408	21,722.5	53.2	86	15,689	408	21,722.5	15,689	573	63	141	31	79	549	850	5.47	2,208	1,359
Maryland----------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Massachusetts ----	298	17,372.1	58.3	86	15,317	298	17,372.1	15,317	575	61	167	27	61	524	871	5.76	2,228	1,357
Michigan----------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minnesota---------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Mississippi --------	270	26,846.5	99.4	84	12,485	270	26,846.5	12,485	452	56	10	18	252	432	684	5.56	1,712	1,028
Missouri-----------	825	55,655.7	67.5	85	13,786	825	55,655.7	13,786	502	60	92	42	145	440	743	5.45	1,778	1,036
Montana ----------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nebraska----------	461	31,568.1	68.5	85	13,205	461	31,568.1	13,205	487	58	123	37	38	369	687	5.28	1,691	1,003
Nevada------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
New Hampshire---	198	11,732.1	59.3	86	15,437	198	11,732.1	15,437	578	60	173	26	52	522	846	5.56	2,196	1,349
New Jersey -------	182	13,714.8	75.4	86	15,892	182	13,714.8	15,892	585	61	137	20	50	497	864	5.50	2,183	1,319
New Mexico ------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
New York---------	2,771	196,715.9	71.0	86	15,873	2,771	196,715.9	15,873	583	62	144	24	61	470	760	4.84	2,159	1,399
North Carolina ---	523	55,874.6	106.8	87	15,287	516	55,082.0	15,298	544	60	20	16	58	504	870	5.77	2,191	1,321
North Dakota-----	144	9,451.4	65.6	83	13,027	144	9,451.4	13,027	467	57	107	40	51	325	591	4.59	1,619	1,028
Ohio---------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oklahoma---------	276	21,795.6	79.0	84	13,969	276	21,795.6	13,969	505	57	66	53	173	431	752	5.48	1,860	1,108
Oregon------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pennsylvania------	3,768	219,702.1	58.3	86	15,523	3,768	219,702.1	15,523	577	65	146	29	72	470	822	5.36	2,099	1,277
Puerto Rico-------	106	19,611.8	185.0	75	9,152	101	18,724.4	9,063	280	45	11	2	351	514	739	8.14	1,909	1,170
Rhode Island------	22	1,249.4	56.8	84	13,950	22	1,249.4	13,950	509	49	163	24	109	405	750	5.46	1,987	1,237
South Carolina----	210	29,593.3	140.9	86	13,829	209	29,461.6	13,817	537	58	20	15	156	462	815	5.99	2,051	1,236
South Dakota -----	267	17,282.4	64.7	85	13,630	267	17,282.4	13,630	496	55	119	39	32	283	615	4.58	1,723	1,108
Tennessee---------	657	59,849.5	91.1	85	14,058	657	59,849.5	14,058	516	61	10	18	86	501	806	5.80	1,937	1,131
Texas -------------	551	72,022.2	130.7	83	13,997	549	71,772.2	13,999	508	68	14	56	156	501	841	6.08	1,982	1,140
Utah --------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vermont-----------	945	55,444.4	58.7	85	14,865	945	55,444.4	14,865	552	57	118	23	89	479	754	5.14	2,091	1,337
Virginia -----------	893	84,867.8	95.0	86	15,190	893	84,867.8	15,190	548	55	23	16	101	458	800	5.32	2,064	1,264
Washington -------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
West Virginia -----	161	12,622.9	78.4	86	14,402	161	12,622.9	14,402	520	57	151	19	99	449	734	5.14	1,971	1,237
Wisconsin ---------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Wyoming----------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
United States-----	19,794	1,453,681.9	73.4	85	14,583	19,764	1,448,567.7	14,588	535	61	90	28	95	459	773	5.40	1,992	1,218

[1] Data reported from Iowa, New York, North Carolina, and Pennsylvania dairy records processing centers.

[2] Includes Puerto Rico.

[3] Percentage of U.S. cows fed concentrates in 1983: 100.0.

[4] Percentage of U.S. cows fed succulent forage in 1983: 75.3.

[5] Percentage of U.S. cows fed dry forage in 1983: 88.7.

[6] Percentage of U.S. cows with 1 or more days on pasture: 57.0.

Table 5.--State and national cow-year totals and averages for nonofficial herd records with feeding and other information reported, 1982[1]

State[2]	Records with milk					Records with fat				Concentrate[3]	Succulent forage[4]	Dry forage[5]	Pasture days[6]	Cost of concentrate	Feed cost	Feed cost/ cwt milk	Value of product	Income over feed cost
	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Herds	Cow-years	Milk	Fat									
	Number	*Number*	*Number*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Cwt*	*Cwt*	*Cwt*	*Number*	*Dol*	*Dol*	*Dol*	*Dol*	*Dol*
Alabama	4	426.5	106.6	86	13,664	4	426.5	13,664	493	32	18	12	68	255	540	3.98	1,861	1,321
Alaska	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Arkansas	36	2,217.1	61.6	84	13,005	36	2,217.1	13,005	446	56	48	45	255	448	677	5.30	1,725	1,048
California	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Colorado	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Connecticut	30	2,685.2	89.5	84	14,526	30	2,685.2	14,526	525	59	204	16	24	483	795	5.48	1,995	1,199
Delaware	3	389.3	129.8	87	14,846	3	389.3	14,846	544	90	191	21	---	673	1,014	6.98	2,000	986
Florida	94	36,258.9	385.7	84	12,854	1	86.0	12,611	449	94	36	16	70	660	871	6.83	2,034	1,162
Georgia	104	16,566.1	159.3	83	12,956	10	667.6	14,150	483	71	7	16	143	552	802	6.32	1,866	1,064
Hawaii	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Idaho	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Illinois	236	11,647.3	49.4	85	13,344	236	11,647.3	13,344	503	49	122	38	47	314	621	4.72	1,716	1,095
Indiana	204	11,435.4	56.1	85	13,852	203	11,435.4	13,981	497	59	37	29	39	396	700	5.19	1,806	1,106
Iowa	1,154	54,406.0	47.1	85	12,575	1,154	54,406.0	12,575	468	49	102	41	48	290	567	4.57	1,587	1,020
Kansas	131	7,078.1	54.0	85	12,881	131	7,078.1	12,881	456	58	95	53	94	382	678	5.35	1,620	942
Kentucky	71	5,791.4	81.6	84	13,087	55	4,626.6	13,283	488	55	14	23	101	400	673	5.18	1,704	1,031
Louisiana	2	108.8	54.4	84	10,502	---	---	---	---	60	---	20	366	501	673	6.50	1,548	875
Maine	41	3,625.7	88.4	85	14,532	41	3,625.7	14,532	524	64	206	14	26	511	837	5.84	2,059	1,222
Maryland	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Massachusetts	19	1,041.6	54.8	83	13,221	19	1,041.6	13,221	486	53	163	27	72	464	793	6.06	1,942	1,149
Michigan	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minnesota	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Mississippi	5	535.0	107.0	86	11,973	5	535.0	11,973	414	46	18	14	248	344	669	5.78	1,651	982
Missouri	177	10,340.0	58.4	84	12,680	177	10,340.0	12,680	457	57	89	40	147	409	685	5.43	1,620	935
Montana	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nebraska	64	4,202.2	65.7	85	12,702	64	4,202.2	12,702	461	53	97	45	67	335	628	5.06	1,588	960
Nevada	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
New Hampshire	28	1,846.5	65.9	84	14,141	28	1,846.5	14,141	510	55	138	27	47	460	765	5.50	1,975	1,211
New Jersey	38	2,260.6	59.5	86	14,007	38	2,260.6	14,007	510	55	147	24	95	431	747	5.38	1,911	1,164
New Mexico	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
New York	2,866	176,095.2	61.4	85	14,728	2,861	175,927.8	14,728	533	56	136	26	73	425	709	4.86	1,986	1,276
North Carolina	58	6,059.0	104.5	86	14,213	21	1,952.8	14,683	546	57	18	13	69	492	856	6.11	2,037	1,181
North Dakota	32	2,289.3	71.5	82	12,407	32	2,289.3	12,407	456	47	103	42	32	281	565	4.64	1,570	1,004
Ohio	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oklahoma	41	2,821.9	68.8	82	12,740	41	2,821.9	12,740	452	56	65	57	175	436	740	5.90	1,694	954
Oregon	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pennsylvania	1,967	96,685.6	49.2	85	14,390	1,961	96,685.6	14,395	526	60	139	30	77	451	801	5.64	1,928	1,127
Rhode Island	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
South Carolina	10	1,025.0	102.5	84	11,914	4	273.2	10,187	417	53	13	8	125	429	734	6.32	1,723	989
South Dakota	312	17,201.0	55.1	83	12,778	312	17,201.0	12,778	467	52	105	46	42	302	600	4.77	1,609	1,009
Tennessee	3	477.2	159.1	88	14,484	3	477.2	14,484	635	49	---	25	177	360	760	5.24	2,130	1,371
Texas	35	5,387.9	153.9	83	13,096	21	3,121.5	13,547	481	71	4	63	177	540	837	6.47	1,838	1,000
Vermont	248	13,219.7	53.3	84	13,590	248	13,219.7	13,590	498	48	102	25	99	411	691	5.16	1,902	1,211
Virginia	38	2,295.5	60.4	86	14,754	38	2,295.5	14,754	522	55	28	16	90	451	782	5.40	1,947	1,164
Virgin Islands	1	139.2	139.2	65	8,142	---	---	---	---	50	---	---	365	580	880	10.81	1,679	799
Washington	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
West Virginia	7	292.8	41.8	87	11,666	6	188.4	12,032	471	50	93	24	208	422	682	6.14	1,683	1,001
Wisconsin	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Wyoming	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
United States	8,059	496,851.0	61.7	85	13,896	7,783	496,579.2	14,039	449	59	110	30	76	430	723	5.28	1,878	1,155

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[1] Data reported from Iowa, New York, North Carolina, and Pennsylvania dairy records processing centers.

[2] Includes Virgin Islands.

[3] Percentage of U.S. cows fed concentrates in 1983: 100.0.

[4] Percentage of U.S. cows fed succulent forage in 1983: 84.2.

[5] Percentage of U.S. cows fed dry forage in 1983: 87.4.

[6] Percentage of U.S. cows with 1 or more days on pasture: 54.5.

Table 6.--National cow-year totals and averages by breed and type of plan, 1982

Type of plan	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Percent*	*Pounds*
Ayrshire														
Official -----------	411	18,153.7	12,250	411	18,153.7	12,250	3.94	482	144	6,085.7	12,566	496	3.35	421
Nonofficial--------	91	3,224.7	11,381	91	3,224.7	11,381	3.91	444	43	1,709.4	11,085	439	3.30	366
Total or average--	502	21,378.4	12,119	502	21,378.4	12,119	3.93	477	187	7,795.1	12,241	483	3.34	409
Brown Swiss														
Official -----------	558	26,552.8	12,767	558	26,552.8	12,767	4.09	522	232	11,738.9	13,053	537	3.59	469
Nonofficial--------	129	4,115.2	11,570	129	4,115.2	11,570	4.07	471	41	1,338.9	11,775	479	3.45	406
Total or average--	687	30,668.0	12,607	687	30,668.0	12,607	4.09	515	273	13,077.8	12,922	531	3.58	463
Guernsey														
Official -----------	938	51,517.2	11,252	938	51,517.2	11,252	4.69	527	330	16,876.5	11,458	544	3.60	413
Nonofficial--------	406	14,653.0	10,588	406	14,653.0	10,588	4.57	484	180	6,669.3	10,828	499	3.49	378
Total or average--	1,344	66,170.2	11,105	1,344	66,170.2	11,105	4.66	518	510	23,545.8	11,279	532	3.57	403
Holstein														
Official -----------	33,285	2,917,905.4	15,610	33,256	2,912,883.5	15,614	3.64	568	8,162	677,584.9	16,010	581	3.23	517
Nonofficial--------	20,541	1,160,246.4	14,285	20,203	1,091,165.9	14,367	3.74	537	5,987	332,790.3	14,719	544	3.16	465
Total or average--	53,826	4,078,151.8	15,233	53,459	4,004,049.4	15,274	3.67	560	14,149	1,010,375.2	15,585	569	3.21	500
Jersey														
Official -----------	1,536	111,270.1	10,694	1,536	111,270.1	10,694	4.88	522	675	54,228.1	11,029	542	3.87	426
Nonofficial--------	367	14,301.4	9,772	363	13,673.9	9,885	4.85	479	145	4,959.4	9,963	485	3.75	374
Total or average--	1,903	125,571.5	10,589	1,899	124,944.0	10,606	4.87	517	820	59,187.5	10,940	538	3.86	422
Milking Shorthorn														
Official -----------	89	3,147.1	10,926	89	3,147.1	10,926	3.68	402	17	602.7	11,628	430	3.29	382
Nonofficial--------	11	331.0	9,986	11	331.0	9,986	3.67	367	---	---	---	---	---	---
Total or average--	100	3,478.1	10,837	100	3,478.1	10,837	3.68	399	17	602.7	11,628	430	3.29	382
Red and White														
Official -----------	25	1,650.6	15,840	25	1,650.6	15,840	3.64	577	9	571.6	15,888	581	3.21	511
Nonofficial--------	8	286.3	13,244	8	286.3	13,244	3.78	501	4	168.3	13,885	509	3.18	442
Total or average--	33	1,936.9	15,456	33	1,936.9	15,456	3.66	565	13	739.9	15,432	565	3.21	495
Mixed breed														
Official -----------	755	52,032.7	12,834	753	51,861.0	12,839	3.86	495	158	11,484.3	12,920	503	3.42	442
Nonofficial--------	385	17,971.5	12,197	379	16,520.5	12,097	3.91	473	70	2,713.8	12,520	509	3.31	415
Total or average--	1,140	70,004.2	12,671	1,132	68,381.5	12,660	3.87	490	228	14,198.1	12,844	504	3.40	437

Table 7.--National cow-year totals and averages for all official and nonofficial herd records by breed and milk level, 1982

Milk level (pounds)	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Percent*	*Pounds*
Ayrshire														
Less than 7,000---	7	265.4	6,476	7	265.4	6,476	4.12	267	4	137.3	6,489	268	3.25	211
7,000- 7,999---	7	344.1	7,514	7	344.1	7,514	3.98	299	2	83.1	7,471	293	3.20	239
8,000- 8,999---	19	648.8	8,563	19	648.8	8,563	3.88	332	2	96.4	8,404	338	3.34	280
9,000- 9,999---	44	1,509.4	9,524	44	1,509.4	9,524	3.94	375	12	538.4	9,486	375	3.37	320
10,000-10,999---	69	2,583.4	10,495	69	2,583.4	10,495	3.93	412	25	862.2	10,447	415	3.30	344
11,000-11,999---	100	4,373.4	11,477	100	4,373.4	11,477	3.96	454	37	1,408.9	11,497	457	3.36	386
12,000-12,999---	91	4,018.7	12,474	91	4,018.7	12,474	3.95	493	42	1,973.1	12,519	499	3.35	419
13,000-13,999---	93	4,780.2	13,468	93	4,780.2	13,468	3.91	526	31	1,455.7	13,518	526	3.35	453
14,000-14,999---	41	1,577.9	14,431	41	1,577.9	14,431	3.90	562	18	702.0	14,379	562	3.33	479
15,000-15,999---	23	964.3	15,367	23	964.3	15,367	3.93	604	12	482.0	15,317	605	3.33	510
16,000-16,999---	6	178.3	16,322	6	178.3	16,322	3.79	618	1	36.4	16,016	622	3.16	506
17,000-17,999---	1	19.6	17,743	1	19.6	17,743	3.83	679	1	19.6	17,743	679	3.50	621
19,000-19,999---	1	114.9	19,049	1	114.9	19,049	4.21	802	---	---	---	---	---	---
Total or average--	502	21,378.4	12,119	502	21,378.4	12,119	3.93	477	187	7,795.1	12,241	483	3.34	409
Brown Swiss														
Less than 7,000---	3	117.4	5,479	3	117.4	5,479	3.73	205	---	---	---	---	---	---
7,000- 7,999---	7	256.8	7,588	7	256.8	7,588	4.01	304	1	59.0	7,709	303	3.53	272
8,000- 8,999---	26	1,355.5	8,642	26	1,355.5	8,642	4.15	359	5	234.0	8,556	347	3.43	293
9,000- 9,999---	43	1,624.6	9,538	43	1,624.6	9,538	3.98	380	16	593.8	9,613	385	3.49	335
10,000-10,999---	75	2,782.8	10,534	75	2,782.8	10,534	4.07	428	23	1,076.5	10,590	436	3.54	375
11,000-11,999---	119	4,787.3	11,530	119	4,787.3	11,530	4.09	472	49	2,131.2	11,520	479	3.60	415
12,000-12,999---	166	7,102.9	12,532	166	7,102.9	12,532	4.11	515	63	2,700.7	12,492	512	3.58	447
13,000-13,999---	100	5,267.1	13,432	100	5,267.1	13,432	4.10	550	47	2,753.3	13,418	549	3.63	487
14,000-14,999---	73	3,410.9	14,497	73	3,410.9	14,497	4.09	594	31	1,492.3	14,500	594	3.57	517
15,000-15,999---	48	2,530.4	15,543	48	2,530.4	15,543	4.06	631	24	1,388.4	15,505	639	3.57	554
16,000-16,999---	18	1,150.2	16,231	18	1,150.2	16,231	4.06	660	7	400.8	16,292	665	3.52	573
17,000-17,999---	6	205.2	17,814	6	205.2	17,814	4.21	750	4	170.9	17,881	757	3.59	642
18,000-18,999---	2	64.8	18,389	2	64.8	18,389	4.15	764	2	64.8	18,389	764	3.62	666
20,000-20,999---	1	12.1	20,802	1	12.1	20,802	3.54	737	1	12.1	20,802	737	3.50	729
Total or average--	687	30,668.0	12,607	687	30,668.0	12,607	4.09	515	273	13,077.8	12,922	531	3.58	463
Guernsey														
Less than 7,000---	20	712.6	6,176	20	712.6	6,176	4.69	290	4	218.0	6,599	306	3.54	234
7,000- 7,999---	56	2,100.2	7,609	56	2,100.2	7,609	4.65	354	14	484.5	7,592	365	3.49	265
8,000- 8,999---	105	4,385.7	8,548	105	4,385.7	8,548	4.66	398	36	1,231.2	8,551	400	3.58	306
9,000- 9,999---	235	10,514.3	9,551	235	10,514.3	9,551	4.68	447	86	3,724.1	9,568	456	3.58	342
10,000-10,999---	282	13,058.4	10,551	282	13,058.4	10,551	4.69	495	102	4,663.8	10,562	504	3.59	380
11,000-11,999---	299	15,786.7	11,505	299	15,786.7	11,505	4.69	539	113	5,091.7	11,463	543	3.56	408
12,000-12,999---	185	10,448.8	12,434	185	10,448.8	12,434	4.69	584	76	4,056.6	12,413	583	3.58	444
13,000-13,999---	108	6,187.2	13,461	108	6,187.2	13,461	4.57	615	54	2,895.2	13,443	622	3.58	481
14,000-14,999---	39	2,053.9	14,416	39	2,053.9	14,416	4.51	650	18	806.8	14,385	674	3.53	508
15,000-15,999---	12	777.5	15,341	12	777.5	15,341	4.53	694	6	347.8	15,419	661	3.50	540
16,000-16,999---	2	116.5	16,175	2	116.5	16,175	4.61	745	1	26.1	16,516	778	3.35	554
18,000-18,999---	1	28.4	18,085	1	28.4	18,085	4.13	747	---	---	---	---	---	---
Total or average--	1,344	66,170.2	11,105	1,344	66,170.2	11,105	4.66	518	510	23,545.8	11,279	532	3.57	403
Holstein														
Less than 7,000---	72	6,900.7	6,187	71	6,834.4	6,180	3.37	209	9	301.7	6,245	237	3.17	198
7,000- 7,999---	123	8,873.0	7,581	120	8,504.1	7,575	3.36	254	8	273.3	7,497	278	3.15	236
8,000- 8,999---	321	22,893.6	8,578	311	20,945.9	8,580	3.50	300	42	2,150.0	8,593	319	3.20	275
9,000- 9,999---	751	49,725.0	9,569	732	46,758.0	9,567	3.60	345	112	6,017.2	9,637	360	3.24	312
10,000-10,999---	1,601	96,176.3	10,546	1,574	89,947.5	10,553	3.67	387	279	14,581.8	10,564	388	3.20	338
11,000-11,999---	3,053	196,512.5	11,565	3,007	188,411.6	11,565	3.69	426	574	35,455.7	11,578	424	3.22	373
12,000-12,999---	5,138	320,908.1	12,531	5,078	306,990.9	12,533	3.70	464	1,068	61,998.3	12,543	465	3.18	399
13,000-13,999---	7,463	495,693.1	13,524	7,387	477,080.4	13,525	3.70	501	1,740	115,212.1	13,529	500	3.21	434
14,000-14,999---	9,083	622,936.7	14,514	9,022	610,968.7	14,512	3.69	536	2,297	155,261.9	14,541	537	3.21	467
15,000-15,999---	9,119	686,183.6	15,502	9,082	679,922.0	15,502	3.67	569	2,523	181,561.3	15,502	567	3.20	497
16,000-16,999---	7,592	630,669.8	16,484	7,577	627,841.7	16,485	3.66	604	2,329	174,826.5	16,487	601	3.21	529
17,000-17,999---	4,967	449,547.6	17,461	4,957	448,793.5	17,461	3.65	637	1,613	127,034.7	17,459	634	3.20	559
18,000-18,999---	2,732	275,869.1	18,428	2,732	275,869.1	18,428	3.63	669	937	78,127.4	18,443	666	3.21	592
19,000-19,999---	1,126	123,181.3	19,444	1,125	123,119.9	19,444	3.60	700	398	35,086.9	19,455	691	3.20	622
20,000-20,999---	458	60,065.9	20,457	458	60,065.9	20,457	3.60	737	150	14,958.7	20,409	729	3.20	654
21,000-21,999---	151	23,794.1	21,430	151	23,794.1	21,430	3.60	771	51	5,838.7	21,445	749	3.23	692
22,000-22,999---	54	6,721.2	22,372	54	6,721.2	22,372	3.55	795	12	1,195.9	22,455	746	3.22	723
23,000-23,999---	11	627.0	23,505	11	627.0	23,505	3.47	816	4	238.1	23,472	794	3.15	740
24,000-24,999---	10	864.6	24,367	9	844.9	24,373	3.49	851	3	255.0	24,331	816	3.16	769
25,000 or more--	1	8.6	25,150	1	8.6	25,150	4.39	1,103	---	---	---	---	---	---
Total or average--	53,826	4,078,151.8	15,233	53,459	4,004,049.4	15,274	3.67	560	14,149	1,010,375.2	15,585	569	3.21	500

Table 7.--National cow-year totals and averages for all official and nonofficial herd records by breed and milk level, 1982--Continued

Milk level (pounds)	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Percent*	*Pounds*
							Jersey							
Less than 7,000---	61	2,484.4	6,010	60	2,258.5	6,197	4.73	293	16	611.2	6,499	313	3.74	243
7,000- 7,999---	96	5,954.2	7,573	95	5,803.4	7,566	4.84	366	35	2,434.7	7,460	367	3.94	294
8,000- 8,999---	263	14,593.5	8,555	263	14,593.5	8,555	4.83	413	74	4,153.9	8,529	417	3.91	333
9,000- 9,999---	403	23,460.4	9,544	401	23,209.6	9,540	4.86	463	161	9,066.4	9,524	467	3.87	369
10,000-10,999---	425	29,146.2	10,538	425	29,146.2	10,538	4.90	516	188	13,805.8	10,561	520	3.87	409
11,000-11,999---	322	21,356.8	11,474	322	21,356.8	11,474	4.87	559	167	12,491.8	11,480	562	3.87	444
12,000-12,999---	209	19,264.8	12,448	209	19,264.8	12,448	4.92	613	113	11,338.4	12,438	617	3.86	480
13,000-13,999---	81	5,930.3	13,363	81	5,930.3	13,363	4.86	650	44	3,425.1	13,378	657	3.76	503
14,000-14,999---	33	2,529.2	14,384	33	2,529.2	14,384	4.78	688	16	1,333.3	14,409	691	3.72	536
15,000-15,999---	7	642.5	15,426	7	642.5	15,426	4.76	735	4	355.6	15,636	777	3.72	582
16,000-16,999---	3	209.2	16,200	3	209.2	16,200	4.70	761	2	171.3	16,201	795	3.71	601
Total or average--	1,903	125,571.5	10,589	1,899	124,944.0	10,606	4.87	517	820	59,187.5	10,940	538	3.86	422
							Milking Shorthorn							
Less than 7,000---	5	131.2	6,328	5	131.2	6,328	3.74	237	1	46.4	6,401	240	3.20	205
7,000- 7,999---	6	173.4	7,574	6	173.4	7,574	3.92	297	---	---	---	---	---	---
8,000- 8,999---	8	282.8	8,497	8	282.8	8,497	3.58	305	---	---	---	---	---	---
9,000- 9,999---	14	449.7	9,436	14	449.7	9,436	3.65	345	1	10.3	9,184	327	3.35	308
10,000-10,999---	17	601.8	10,373	17	601.8	10,373	3.63	377	2	106.9	10,306	383	3.36	347
11,000-11,999---	23	908.9	11,366	23	908.9	11,366	3.64	414	4	110.6	11,335	421	3.23	366
12,000-12,999---	12	479.2	12,412	12	479.2	12,412	3.67	455	4	196.4	12,383	446	3.31	410
13,000-13,999---	10	260.1	13,428	10	260.1	13,428	3.73	501	3	92.0	13,531	520	3.25	440
14,000-14,999---	4	104.5	14,652	4	104.5	14,652	3.72	545	2	40.1	14,580	541	3.26	476
15,000-15,999---	1	86.5	15,673	1	86.5	15,673	4.00	627	---	---	---	---	---	---
Total or average--	100	3,478.1	10,837	100	3,478.1	10,837	3.68	399	17	602.7	11,628	430	3.29	382
							Red and White							
11,000-11,999---	4	173.4	11,611	4	173.4	11,611	3.81	443	1	28.3	11,629	404	2.92	340
12,000-12,999---	5	223.0	12,336	5	223.0	12,336	3.82	471	1	41.8	12,142	468	3.21	390
13,000-13,999---	3	160.0	13,505	3	160.0	13,505	3.55	480	1	46.9	13,731	473	3.13	430
14,000-14,999---	6	321.0	14,452	6	321.0	14,452	3.79	547	3	188.2	14,623	565	3.18	466
15,000-15,999---	5	195.6	15,429	5	195.6	15,429	3.81	588	2	83.3	15,482	574	3.16	490
16,000-16,999---	4	241.4	16,466	4	241.4	16,466	3.59	591	4	241.4	16,466	591	3.24	533
17,000-17,999---	3	260.0	17,384	3	260.0	17,384	3.64	633	1	110.0	17,467	617	3.28	573
18,000-18,999---	2	289.6	18,250	2	289.6	18,250	3.45	629	---	---	---	---	---	---
21,000-21,999---	1	72.9	21,604	1	72.9	21,604	3.57	771	---	---	---	---	---	---
Total or average--	33	1,936.9	15,456	33	1,936.9	15,456	3.66	565	13	739.9	15,432	565	3.21	495
							Mixed breed							
Less than 7,000---	16	594.8	6,378	16	594.8	6,378	4.12	263	1	22.5	6,975	264	3.11	217
7,000- 7,999---	21	1,013.3	7,404	21	1,013.3	7,404	3.95	292	1	58.8	7,746	402	3.67	284
8,000- 8,999---	52	2,616.1	8,629	52	2,616.1	8,629	4.08	352	7	344.5	8,797	394	3.45	303
9,000- 9,999---	103	5,127.4	9,530	102	4,980.8	9,532	4.02	383	14	426.9	9,515	388	3.45	329
10,000-10,999---	173	9,327.3	10,528	172	9,217.9	10,529	4.02	424	36	2,573.8	10,531	423	3.44	362
11,000-11,999---	180	10,214.2	11,508	178	10,077.9	11,507	4.00	460	41	2,594.3	11,483	479	3.48	399
12,000-12,999---	164	10,723.1	12,484	163	10,471.1	12,486	3.89	486	23	1,711.0	12,575	488	3.43	432
13,000-13,999---	142	8,358.1	13,441	141	8,295.8	13,444	3.85	517	39	2,129.1	13,405	533	3.41	456
14,000-14,999---	121	9,179.5	14,473	119	8,263.4	14,473	3.76	544	24	1,548.4	14,471	554	3.40	491
15,000-15,999---	81	6,139.7	15,403	81	6,139.7	15,403	3.75	578	19	1,221.6	15,439	571	3.34	515
16,000-16,999---	46	3,081.4	16,408	46	3,081.4	16,408	3.77	619	12	769.9	16,309	600	3.26	532
17,000-17,999---	25	2,557.3	17,398	25	2,557.3	17,398	3.56	620	10	755.7	17,376	633	3.28	571
18,000-18,999---	11	869.5	18,209	11	869.5	18,209	3.78	688	1	41.6	18,032	637	3.07	554
19,000-19,999---	4	156.9	19,631	4	156.9	19,631	3.64	715	---	---	---	---	---	---
20,000-20,999---	1	45.6	20,410	1	45.6	20,410	3.66	746	---	---	---	---	---	---
Total or average--	1,140	70,004.2	12,671	1,132	68,381.5	12,660	3.87	490	228	14,198.1	12,844	504	3.40	437
							All breeds							
Less than 7,000---	184	11,206.5	6,158	182	10,914.3	6,195	3.81	236	35	1,337.1	6,461	287	3.50	226
7,000- 7,999---	316	18,715.0	7,570	312	18,195.3	7,566	4.04	306	61	3,393.4	7,491	357	3.78	283
8,000- 8,999---	794	46,776.0	8,572	784	44,828.3	8,573	4.10	352	166	8,210.0	8,560	385	3.63	311
9,000- 9,999---	1,593	92,410.8	9,556	1,571	89,046.4	9,554	4.09	391	402	20,377.1	9,567	427	3.60	344
10,000-10,999---	2,642	153,676.2	10,542	2,614	147,338.0	10,546	4.03	426	655	37,670.8	10,557	455	3.52	372
11,000-11,999---	4,100	254,113.2	11,549	4,052	245,876.0	11,548	3.88	448	986	59,312.5	11,539	469	3.41	394
12,000-12,999---	5,970	373,168.6	12,522	5,909	358,999.4	12,523	3.81	477	1,390	84,016.3	12,521	494	3.31	415
13,000-13,999---	8,000	526,636.1	13,518	7,923	507,961.1	13,519	3.73	505	1,959	128,009.4	13,519	509	3.25	439
14,000-14,999---	9,400	642,113.6	14,512	9,337	629,229.5	14,510	3.71	538	2,409	161,373.0	14,537	539	3.22	468
15,000-15,999---	9,296	697,520.1	15,501	9,259	691,258.5	15,501	3.68	570	2,590	185,440.0	15,501	569	3.21	498
16,000-16,999---	7,671	635,646.8	16,483	7,656	632,818.7	16,484	3.66	604	2,356	176,472.4	16,485	601	3.21	529
17,000-17,999---	5,002	452,589.7	17,460	4,992	451,835.6	17,460	3.65	637	1,629	128,090.9	17,459	634	3.21	560
18,000-18,999---	2,748	277,121.4	18,427	2,748	277,121.4	18,427	3.63	669	940	78,233.8	18,443	666	3.21	592
19,000-19,999---	1,131	123,453.1	19,444	1,130	123,391.7	19,444	3.60	700	398	35,086.9	19,455	691	3.20	622
20,000-20,999---	460	60,123.6	20,457	460	60,123.6	20,457	3.60	737	151	14,970.8	20,409	729	3.20	654
21,000-21,999---	152	23,867.0	21,431	152	23,867.0	21,431	3.60	771	51	5,838.7	21,445	749	3.23	692
22,000-22,999---	54	6,721.2	22,372	54	6,721.2	22,372	3.55	795	12	1,195.9	22,455	746	3.22	723
23,000-23,999---	11	627.0	23,505	11	627.0	23,505	3.47	816	4	238.1	23,472	794	3.15	740
24,000-24,999---	10	864.6	24,367	9	844.9	24,373	3.49	851	3	255.0	24,331	816	3.16	769
25,000 or more--	1	8.6	25,150	1	8.6	25,150	4.39	1,103	---	---	---	---	---	---
Total or average--	59,535	4,397,359.1	14,961	59,156	4,321,006.5	14,996	3.71	556	16,197	1,129,522.1	15,161	565	3.24	492

Table 8.--National cow-year totals and averages for all official and nonofficial herd records by breed and herd size, 1982

Herd size (number)	Records with milk			Records with fat					Records with protein					
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Percent*	*Pounds*
							Ayrshire							
5- 24.9-----	140	2,116.5	11,860	140	2,116.5	11,860	3.94	467	48	655.9	12,666	505	3.33	422
25- 49.9-----	205	7,619.1	11,802	205	7,619.1	11,802	3.93	464	73	2,667.4	11,664	459	3.31	386
50- 74.9-----	107	6,354.3	12,089	107	6,354.3	12,089	3.94	476	52	3,091.1	12,362	486	3.33	412
75- 99.9-----	34	2,946.7	12,324	34	2,946.7	12,324	3.91	482	9	769.7	12,618	508	3.45	436
100- 149.9-----	11	1,296.2	13,793	11	1,296.2	13,793	4.00	551	4	446.2	12,992	529	3.37	438
150- 199.9-----	3	548.4	13,573	3	548.4	13,573	3.86	524	1	164.8	13,851	507	3.43	475
200- 299.9-----	2	497.2	11,275	2	497.2	11,275	3.86	436	---	---	---	---	---	---
Total or average--	502	21,378.4	12,119	502	21,378.4	12,119	3.93	477	187	7,795.1	12,241	483	3.34	409
							Brown Swiss							
5- 24.9-----	180	2,723.2	12,093	180	2,723.2	12,093	4.08	494	75	1,118.4	12,412	511	3.52	437
25- 49.9-----	294	10,825.1	12,350	294	10,825.1	12,350	4.10	506	97	3,721.6	12,701	527	3.55	451
50- 74.9-----	135	8,035.8	12,411	135	8,035.8	12,411	4.08	506	63	3,752.8	12,943	526	3.56	461
75- 99.9-----	37	3,115.5	13,180	37	3,115.5	13,180	4.09	539	17	1,416.0	13,678	563	3.60	492
100- 149.9-----	32	3,832.8	13,171	32	3,832.8	13,171	4.09	539	16	1,889.1	12,655	522	3.63	460
150- 199.9-----	2	346.9	12,882	2	346.9	12,882	4.05	522	1	157.7	12,127	472	3.74	454
200- 299.9-----	6	1,459.9	13,643	6	1,459.9	13,643	4.09	558	3	693.4	14,057	581	3.58	503
300- 399.9-----	1	328.8	13,183	1	328.8	13,183	3.99	526	1	328.8	13,183	526	3.81	502
Total or average--	687	30,668.0	12,607	687	30,668.0	12,607	4.09	515	273	13,077.8	12,922	531	3.58	463
							Guernsey							
5- 24.9-----	257	4,367.7	10,525	257	4,367.7	10,525	4.62	486	105	1,643.5	10,964	512	3.51	385
25- 49.9-----	622	23,031.4	10,728	622	23,031.4	10,728	4.65	499	239	8,744.2	11,018	516	3.53	389
50- 74.9-----	284	17,117.8	11,329	284	17,117.8	11,329	4.69	532	103	6,322.0	11,355	540	3.58	407
75- 99.9-----	96	8,152.0	11,451	96	8,152.0	11,451	4.65	532	34	2,890.2	11,870	554	3.60	427
100- 149.9-----	50	5,998.3	11,428	50	5,998.3	11,428	4.63	529	22	2,690.5	11,378	542	3.63	413
150- 199.9-----	25	4,219.5	11,264	25	4,219.5	11,264	4.64	522	6	1,045.1	11,213	531	3.65	409
200- 299.9-----	6	1,455.4	12,381	6	1,455.4	12,381	4.70	582	1	210.3	13,247	622	3.69	489
300- 399.9-----	2	631.9	9,614	2	631.9	9,614	4.77	459	---	---	---	---	---	---
400- 499.9-----	1	412.4	11,603	1	412.4	11,603	4.59	532	---	---	---	---	---	---
750- 999.9-----	1	783.8	12,184	1	783.8	12,184	4.88	595	---	---	---	---	---	---
Total or average--	1,344	66,170.2	11,105	1,344	66,170.2	11,105	4.66	518	510	23,545.8	11,279	532	3.57	403
							Holstein							
5- 24.9-----	2,825	55,172.4	14,064	2,820	55,060.1	14,061	3.70	521	671	12,786.9	14,366	535	3.15	453
25- 49.9-----	21,383	825,711.6	14,641	21,350	824,443.5	14,643	3.72	544	5,284	206,526.3	14,965	556	3.15	472
50- 74.9-----	14,848	901,861.7	15,026	14,797	898,706.8	15,031	3.69	555	4,153	252,526.1	15,524	572	3.18	493
75- 99.9-----	6,305	541,133.7	15,088	6,265	537,723.9	15,099	3.66	552	1,762	150,982.2	15,592	569	3.21	500
100- 149.9-----	4,623	552,613.8	15,203	4,548	543,301.9	15,246	3.63	554	1,328	159,335.4	15,834	574	3.22	511
150- 199.9-----	1,568	268,850.3	15,161	1,515	259,681.6	15,236	3.62	552	475	81,603.5	15,975	576	3.25	519
200- 299.9-----	1,124	270,222.1	15,441	1,081	259,833.3	15,549	3.61	562	316	75,515.7	16,100	575	3.27	527
300- 399.9-----	428	146,730.9	15,587	410	140,654.4	15,708	3.62	569	97	33,396.8	16,130	579	3.28	529
400- 499.9-----	242	108,400.8	16,231	228	101,968.9	16,439	3.64	599	34	15,304.6	16,353	581	3.28	537
500- 749.9-----	272	163,357.9	16,585	248	148,674.7	16,925	3.65	617	18	10,413.4	16,777	583	3.30	553
750- 999.9-----	99	85,037.7	16,798	89	76,568.7	17,232	3.66	631	7	6,349.1	15,164	551	3.31	502
1,000-1,249.9-----	52	57,245.7	17,626	52	57,245.7	17,626	3.60	635	2	2,124.9	19,830	654	3.34	662
1,250-1,499.9-----	26	36,052.3	17,260	26	36,052.3	17,260	3.61	624	---	---	---	---	---	---
1,500-1,999.9-----	17	28,881.0	16,341	16	27,253.7	16,429	3.64	597	2	3,510.3	15,124	547	3.23	489
2,000-2,999.9-----	10	22,898.0	17,205	10	22,898.0	17,205	3.55	610	---	---	---	---	---	---
3,000 and more---	4	13,981.9	14,937	4	13,981.9	14,937	3.74	558	---	---	---	---	---	---
Total or average--	53,826	4,078,151.8	15,233	53,459	4,004,049.4	15,274	3.67	560	14,149	1,010,375.2	15,585	569	3.21	500
							Jersey							
5- 24.9-----	372	5,750.6	10,074	372	5,750.6	10,074	4.82	486	174	2,711.3	10,370	505	3.79	393
25- 49.9-----	660	24,479.2	10,183	660	24,479.2	10,183	4.84	493	246	9,160.0	10,479	510	3.78	397
50- 74.9-----	366	22,242.2	10,394	366	22,242.2	10,394	4.87	506	156	9,442.2	10,518	516	3.85	405
75- 99.9-----	197	16,993.7	10,516	196	16,908.8	10,520	4.84	510	86	7,464.9	10,992	535	3.86	424
100- 149.9-----	165	20,033.5	10,847	165	20,033.5	10,847	4.87	529	80	9,727.8	11,323	556	3.87	438
150- 199.9-----	65	11,149.6	10,652	63	10,832.9	10,703	4.87	522	29	5,029.8	11,077	552	3.91	433
200- 299.9-----	47	11,158.7	11,068	46	10,932.8	11,212	4.86	545	27	6,224.1	11,712	570	3.86	452
300- 399.9-----	14	4,622.7	11,033	14	4,622.7	11,033	4.98	549	10	3,286.9	11,128	562	3.82	425
400- 499.9-----	9	3,979.6	11,339	9	3,979.6	11,339	5.07	575	7	3,134.2	11,602	583	3.91	454
500- 749.9-----	7	4,177.2	10,712	7	4,177.2	10,712	5.04	540	5	3,006.3	10,094	504	3.99	403
750- 999.9-----	1	984.5	12,345	1	984.5	12,345	4.79	591	---	---	---	---	---	---
Total or average--	1,903	125,571.5	10,589	1,899	124,944.0	10,606	4.87	517	820	59,187.5	10,940	538	3.86	422
							Milking Shorthorn							
5- 24.9-----	39	559.8	10,738	39	559.8	10,738	3.67	395	8	94.1	12,061	442	3.33	402
25- 49.9-----	42	1,515.4	10,563	42	1,515.4	10,563	3.69	389	5	168.1	11,041	420	3.22	356
50- 74.9-----	12	730.5	11,323	12	730.5	11,323	3.67	416	2	119.0	12,098	454	3.17	384
75- 99.9-----	4	326.6	10,565	4	326.6	10,565	3.83	405	1	79.0	10,169	377	3.44	350
100- 149.9---	3	345.8	11,422	3	345.8	11,422	3.53	403	1	142.5	12,453	443	3.34	416
Total or average--	100	3,478.1	10,837	100	3,478.1	10,837	3.68	399	17	602.7	11,628	430	3.29	382

Table 8.--National cow-year totals and averages for all official and nonofficial herd records by breed and herd size, 1982--Continued

	Records with milk			Records with fat					Records with protein					
Herd size (number)	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Fat	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Percent*	*Pounds*
							Red and White							
5- 24.9-----	2	44.1	13,372	2	44.1	13,372	4.25	568	---	---	---	---	---	---
25- 49.9-----	16	632.5	14,107	16	632.5	14,107	3.66	516	8	317.5	14,636	531	3.15	461
50- 74.9-----	8	489.4	15,518	8	489.4	15,518	3.76	583	2	122.3	15,419	596	3.27	504
75- 99.9-----	3	265.6	14,701	3	265.6	14,701	3.81	560	1	84.4	14,757	588	3.12	461
100- 149.9-----	3	338.3	17,479	3	338.3	17,479	3.40	595	2	215.7	16,877	589	3.28	553
150- 199.9-----	1	167.0	18,037	1	167.0	18,037	3.59	647	---	---	---	---	---	---
Total or average--	33	1,936.9	15,456	33	1,936.9	15,456	3.66	565	13	739.9	15,432	565	3.21	495
							Mixed breed							
5- 24.9-----	191	3,208.1	11,807	191	3,208.1	11,807	3.96	467	46	687.5	12,078	486	3.35	405
25- 49.9-----	479	17,810.8	12,086	478	17,766.5	12,088	3.95	477	78	2,858.5	12,556	506	3.35	420
50- 74.9-----	205	12,333.9	12,574	204	12,271.6	12,572	3.87	486	33	2,042.9	13,375	522	3.40	455
75- 99.9-----	116	9,943.4	12,735	115	9,851.4	12,746	3.90	497	33	2,760.7	13,064	514	3.39	443
100- 149.9-----	89	10,750.3	12,526	86	10,387.9	12,570	3.84	483	22	2,615.7	13,361	514	3.44	460
150- 199.9-----	33	5,797.1	12,833	33	5,797.1	12,833	3.86	495	13	2,270.2	12,622	487	3.42	432
200- 299.9-----	13	2,900.0	13,315	12	2,648.0	13,402	3.89	521	1	202.2	10,996	421	3.47	382
300- 399.9-----	6	1,989.4	13,202	6	1,989.4	13,202	3.77	498	1	312.7	12,748	460	3.44	439
400- 499.9-----	3	1,303.9	12,253	3	1,303.9	12,253	4.02	493	1	447.7	11,082	469	3.42	379
500- 749.9-----	2	1,210.6	15,680	2	1,210.6	15,680	3.59	563	---	---	---	---	---	---
750- 999.9-----	2	1,705.9	14,672	1	896.2	14,863	3.08	458	---	---	---	---	---	---
1,000-1,249.9-----	1	1,050.8	17,346	1	1,050.8	17,346	3.60	624	---	---	---	---	---	---
Total or average--	1,140	70,004.2	12,671	1,132	68,381.5	12,660	3.87	490	228	14,198.1	12,844	504	3.40	437
							All breeds							
5- 24.9-----	4,006	73,942.4	13,285	4,001	73,830.1	13,282	3.84	510	1,127	19,697.6	13,274	525	3.28	435
25- 49.9-----	23,701	911,625.1	14,315	23,667	910,312.7	14,316	3.77	539	6,030	234,163.6	14,536	551	3.19	464
50- 74.9-----	15,965	969,165.6	14,780	15,913	965,948.4	14,784	3.73	552	4,564	277,418.4	15,171	567	3.21	487
75- 99.9-----	6,792	582,877.2	14,837	6,750	579,290.5	14,847	3.70	549	1,943	166,447.1	15,246	566	3.24	494
100- 149.9-----	4,976	595,209.0	14,953	4,898	585,534.7	14,991	3.68	551	1,475	177,062.9	15,440	571	3.26	504
150- 199.9-----	1,697	291,078.8	14,882	1,642	281,593.4	14,948	3.68	549	525	90,271.1	15,552	571	3.28	511
200- 299.9-----	1,198	287,693.3	15,218	1,153	276,826.6	15,323	3.66	561	348	82,845.7	15,734	574	3.31	520
300- 399.9-----	451	154,303.7	15,390	433	148,227.2	15,497	3.66	567	109	37,325.2	15,635	576	3.32	519
400- 499.9-----	255	114,096.7	15,998	241	107,664.8	16,181	3.69	596	42	18,886.5	15,439	579	3.36	519
500- 749.9-----	281	168,745.7	16,433	257	154,062.5	16,747	3.67	615	23	13,419.7	15,280	565	3.40	520
750- 999.9-----	103	88,511.9	16,667	92	79,233.2	17,095	3.68	628	7	6,349.1	15,164	551	3.31	502
1,000-1,249.9-----	53	58,296.5	17,621	53	58,296.5	17,621	3.60	635	2	2,124.9	19,830	654	3.34	662
1,250-1,499.9-----	26	36,052.3	17,260	26	36,052.3	17,260	3.61	624	---	---	---	---	---	---
1,500-1,999.9-----	17	28,881.0	16,341	16	27,253.7	16,429	3.64	597	2	3,510.3	15,124	547	3.23	489
2,000-2,999.9-----	10	22,898.0	17,205	10	22,898.0	17,205	3.55	610	---	---	---	---	---	---
3,000 and more---	4	13,981.9	14,937	4	13,981.9	14,937	3.74	558	---	---	---	---	---	---
Total or average--	59,535	4,397,359.1	14,961	59,156	4,321,006.5	14,996	3.71	556	16,197	1,129,522.1	15,161	565	3.24	492

Table 9.--Numbers of herds and cow-years by breed and plan, 1982

Plan[1]	Ayrshire		Brown Swiss		Guernsey		Holstein		Jersey		Milking Shorthorn		Red and White		Mixed breed	
	Herds	Cow-years	Herds	Cow-years	Herds	Cow-years	Herds	Cow-years	Herds	Cow-years	Herds	Cow-years	Herds	Cow-years	Herds	Cow-years
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
DHI----------------	261	10,278.3	200	7,822.7	565	27,833.1	25,536	2,153,308.9	794	50,751.5	29	903.0	23	1,422.3	536	33,342.0
DHI-AP -----------	2	117.7	11	485.6	17	769.2	1,374	116,365.2	25	2,400.0	---	---	---	---	30	1,725.3
DHI-APCS --------	9	619.7	11	780.7	34	2,773.7	2,580	304,376.7	118	12,283.6	---	---	1	122.6	96	8,975.2
DHIR--------------	137	6,892.0	326	16,752.4	302	18,476.1	3,791	341,902.6	511	34,338.6	60	2,244.1	1	105.7	82	5,832.9
DHIR-AP----------	1	192.4	---	---	1	165.8	1	62.4	2	231.9	---	---	---	---	---	---
DHIR-APCS ------	1	53.6	10	711.4	19	1,499.3	3	1,889.6	86	11,264.5	---	---	---	---	11	2,157.3
OS-----------------	54	1,831.1	98	2,976.5	338	11,717.6	13,200	627,190.7	270	9,702.1	9	295.0	5	173.2	239	8,832.2
OS-AP-------------	7	209.6	8	303.8	38	1,589.6	2,801	145,360.7	20	631.6	1	20.8	1	37.9	43	1,839.9
OS-APCS ---------	---	---	---	---	1	79.2	52	3,821.6	5	519.5	---	---	---	---	2	122.6
OS-MO------------	---	---	2	87.9	1	35.0	413	49,377.8	---	---	---	---	---	---	7	815.3
OS-MO-AP--------	---	---	---	---	---	---	65	6,905.2	1	39.1	---	---	---	---	---	---
OS-ACT-----------	---	---	---	---	---	---	63	6,891.8	---	---	---	---	---	---	2	145.7
OS-AP-ACT-------	---	---	---	---	---	---	1	72.3	---	---	---	---	---	---	---	---
OS-TCT-----------	---	---	---	---	1	108.0	20	1,147.0	1	61.0	---	---	---	---	---	---
OS-MO-TMW------	---	---	---	---	---	---	3	319.0	---	---	---	---	---	---	---	---
Comm-------------	---	---	---	---	---	---	129	41,912.1	6	818.7	---	---	---	---	7	681.7
Comm-AP---------	---	---	1	23.1	---	---	98	9,820.5	2	298.6	---	---	---	---	4	753.6
SS-AP-------------	30	1,184.0	20	723.9	27	1,123.6	3,445	211,468.3	58	1,603.3	1	15.2	2	75.2	76	3,373.8
SS-MO ------------	---	---	---	---	---	---	236	53,478.1	---	---	---	---	---	---	---	---
SS-MO-AP --------	---	---	---	---	---	---	15	2,481.3	4	627.5	---	---	---	---	5	1,406.7

[1] DHI = Official DHI; DHI-AP = Official DHI AM-PM with Monitoring Device; DHI-APCS = Official DHI with Alternate AM-PM Component Sampling; DHIR = Official DHIR; DHIR-AP = Official DHIR AM-PM with Monitoring Device; DHIR-APCS = Official DHIR with Alternate AM-PM Component Sampling; OS = Owner-Sampler; OS-AP = Owner-Sampler AM-PM; OS-APCS = Owner-Sampler with Alternate AM-PM Component Sampling; OS-MO = Owner-Sampler Milk Only; OS-MO-AP = Owner-Sampler AM-PM Milk Only; OS-ACT = Owner-Sampler with Average (Breed or Plant) Components Used; OS-AP-ACT = Owner-Sampler AM-PM with Average (Breed or Plant) Components Used; OS-TCT = Owner-Sampler with Trimonthly Component Tests; OS-MO-TMW = Owner-Sampler Milk Only with Trimonthly Milk Weights; Comm = Commercial; Comm-AP = Commercial AM-PM; SS-AP = Supervised Sampling AM-PM; SS-MO = Supervised Sampling Milk Only; and SS-MO-AP = Supervised Sampling AM-PM Milk Only.

Table 10.--National cow-year totals and averages for all official and nonofficial herd records for milk, fat, and protein by plan, 1982

Plan[1]	Records with milk			Records with fat					Records with protein				
	Herds	Cow-years	Milk	Herds	Cow-years	Milk	Fat	Fat	Herds	Cow-years	Milk	Protein	Protein
	Number	*Number*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*
DHI----------------	27,944	2,285,661.8	15,442	27,937	2,284,610.1	15,443	3.69	569	7,236	572,711.8	15,616	3.24	506
DHI-AP -----------	1,459	121,863.0	14,872	1,459	121,863.0	14,872	3.67	546	41	3,619.0	13,231	3.36	445
DHI-APCS -------	2,849	329,932.2	13,275	2,825	325,790.3	13,275	3.55	472	394	52,100.1	13,428	3.40	457
DHIR--------------	5,210	426,544.4	16,185	5,210	426,544.4	16,185	3.79	613	2,014	144,706.7	15,693	3.33	523
DHIR-AP----------	5	652.5	12,217	5	652.5	12,217	4.39	536	3	397.7	11,392	3.86	440
DHIR-APCS ------	130	17,575.7	11,890	130	17,575.7	11,890	4.33	514	39	5,637.4	11,929	3.79	453
OS-----------------	14,213	662,718.4	14,139	14,171	660,498.7	14,139	3.82	541	3,830	176,977.0	14,331	3.18	456
OS-AP-------------	2,919	149,993.9	13,866	2,913	149,614.2	13,864	3.80	527	581	32,615.7	14,090	3.17	447
OS-APCS ---------	60	4,542.9	13,402	60	4,542.9	13,402	3.74	501	14	1,142.0	14,293	3.30	472
OS-MO------------	423	50,316.0	14,017	346	33,683.6	14,406	3.60	518	1	18.9	12,021	3.08	370
OS-MO-AP -------	66	6,944.3	14,292	61	5,862.4	14,550	3.56	517	---	---	---	---	---
OS-ACT-----------	65	7,037.5	13,638	65	7,037.5	13,638	3.65	498	---	---	---	---	---
OS-AP-ACT-------	1	72.3	12,709	1	72.3	12,709	3.78	481	---	---	---	---	---
OS-TCT-----------	22	1,316.0	15,109	22	1,316.0	15,109	3.80	574	---	---	---	---	---
OS-MO-TMW------	3	319.0	14,051	3	319.0	14,051	3.63	511	---	---	---	---	---
Comm-------------	142	43,412.5	15,285	142	43,412.5	15,285	3.66	560	52	8,995.9	15,130	3.32	503
Comm-AP---------	105	10,895.8	14,592	105	10,895.8	14,592	3.66	533	32	2,889.1	14,975	3.12	467
SS-AP-------------	3,659	219,567.3	14,431	3,659	219,567.3	14,431	3.60	520	1,959	127,367.8	14,873	3.14	467
SS-MO ------------	245	55,512.3	12,911	28	4,767.4	14,006	3.63	509	---	---	---	---	---
SS-MO-AP --------	15	2,481.3	14,270	14	2,380.9	14,567	3.56	519	1	343.0	14,607	3.66	534
Total or average--	59,535	4,397,359.1	14,961	59,156	4,321,006.5	14,996	3.71	556	16,197	1,129,522.1	15,161	3.24	492

[1] DHI = Official DHI; DHI-AP = Official DHI AM-PM with Monitoring Device; DHI-APCS = Official DHI with Alternate AM-PM Component Sampling; DHIR = Official DHIR; DHIR-AP = Official DHIR AM-PM with Monitoring Device; DHIR-APCS = Official DHIR with Alternate AM-PM Component Sampling; OS = Owner-Sampler; OS-AP = Owner-Sampler AM-PM; OS-APCS = Owner-Sampler with Alternate AM-PM Component Sampling; OS-MO = Owner-Sampler Milk Only; OS-MO-AP = Owner-Sampler AM-PM Milk Only; OS-ACT = Owner-Sampler with Average (Breed or Plant) Components Used; OS-AP-ACT = Owner-Sampler AM-PM with Average (Breed or Plant) Components Used; OS-TCT = Owner-Sampler with Trimonthly Component Tests; OS-MO-TMW = Owner-Sampler Milk Only with Trimonthly Milk Weights; Comm = Commercial; Comm-AP = Commercial AM-PM; SS-AP = Supervised Sampling AM-PM; SS-MO = Supervised Sampling Milk Only; and SS-MO-AP = Supervised Sampling AM-PM Milk Only.

Table 11.--Numbers of herds and cow-years by dairy records processing center (DRPC) for all official and nonofficial herds with cows milked 3 times a day (3X), 1982

DRPC	Herds		Cow-years	
	Number	Percent	Number	Percent
California---------	82	9.4	26,223.7	9.0
Iowa---------------	99	1.3	10,094.7	2.2
Michigan----------	147	6.5	17,572.0	10.4
Minnesota---------	111	1.7	7,284.6	2.2
New York---------	360	4.0	40,521.8	6.9
North Carolina ---	203	3.2	38,589.4	5.7
Pennsylvania[1]-----	---	---	---	---
Utah --------------	580	9.6	149,256.6	18.4
Wisconsin ---------	263	1.8	19,334.9	2.5
United States[2]----	1,845	3.4	308,877.7	7.6

[1] No 3X reporting.

[2] Pennsylvania data excluded from U.S. total number of herds when calculating U.S. percentages milked 3X.

Table 12.--Summary of cow-year totals and averages for all official herd records, 1939-82[1]

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat
	Number	*Number*	*Number*	*Percent*	*Pounds*	*Percent*	*Pounds*
1939-40-----	---	545,382	---	---	8,133	4.07	331
1940-41-----	---	591,103	---	---	8,225	4.07	335
1941-42-----	---	514,758	---	---	8,323	4.07	339
1942-43-----	---	375,914	---	---	8,325	4.06	338
1943-44-----	---	383,337	---	---	8,296	4.05	336
1944-45-----	---	384,360	---	---	8,592	4.03	346
1945-46-----	---	413,554	---	---	8,635	4.04	349
1946-47-----	---	533,061	---	---	8,638	4.03	348
1947-48-----	---	620,385	---	---	8,675	4.03	350
1948-49-----	---	729,150	---	---	8,907	4.03	359
1949-50-----	---	836,922	---	---	9,172	4.03	370
1950-51-----	---	885,859	---	---	9,195	4.02	370
1951-52-----	---	928,376	---	---	9,192	3.98	366
1952-53-----	---	1,020,326	---	---	9,253	3.98	368
1953-54-----	---	1,079,557	---	---	9,363	3.97	372
1954-55-----	---	1,175,378	---	---	9,502	3.95	375
1955-56-----	---	1,229,971	---	---	9,713	3.94	383
1956-57-----	---	1,256,129	---	---	9,894	3.93	389
1957-58-----	---	1,345,750	---	---	10,068	3.91	394
1958-59-----	---	1,406,665	---	---	10,327	3.88	401
1959-60 ----	---	1,343,725	---	---	10,561	3.87	409
1960-61-----	28,649	1,280,785	44.7	---	10,796	3.87	418
1961-62-----	32,794	1,531,826	46.7	---	11,032	3.86	426
1962-63-----	35,378	1,674,803	47.3	---	11,286	3.85	434
1963-64-----	35,689	1,746,475	48.9	---	11,685	3.83	447
1964-65-----	35,604	1,821,252	51.2	---	11,976	3.82	457
1965-66-----	34,886	1,852,533	53.1	---	12,127	3.81	462
1966-67-----	34,515	1,890,024	54.8	---	12,307	3.80	468
1967-68-----	33,560	1,924,200	57.3	85	12,397	3.80	471
1968-69-----	33,130	1,959,647	59.2	85	12,553	3.79	476
1969-70-----	31,138	1,937,390	62.2	85	12,750	3.79	483
1970-71-----	30,699	1,995,463	65.0	85	13,000	3.76	489
1971-72-----	30,190	2,050,132	67.9	85	13,226	3.75	496
1972-73-----	30,826	2,177,626	70.6	85	13,287	3.76	499
1973-74-----	30,280	2,221,349	73.4	85	13,163	3.75	493
1974-75-----	29,543	2,216,817	75.0	85	13,421	3.76	505
1975-76-----	29,634	2,240,752	75.6	86	13,632	3.75	511
1976-77-----	30,764	2,373,261	77.1	86	14,435	3.73	539
1977-78-----	31,783	2,476,946	77.9	86	14,631	3.70	542
1978-79-----	32,831	2,571,361	78.3	86	14,644	3.70	542
1979-80-----	34,449	2,771,379	80.4	85	14,786	3.70	547
1980[2]-------	35,206	2,867,177	81.4	86	14,960	3.70	553
1981--------	36,691	3,044,386	83.0	86	15,137	3.69	558
1982--------	37,548	3,175,552	84.6	86	15,280	3.69	564

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[1] National test year was established to begin May 1 in 1960. No report was prepared in 1960; therefore, averages of data for 1959 and 1960 were used. In previous years, beginning date varied by State.

[2] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 13.--Summary of cow-year totals and averages for all official herd records with feeding and other information reported, 1939-82[1]

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat	Concentrate	Succulent forage	Dry forage	Pasture days	Cost of concentrate	Feed cost	Feed cost/cwt milk	Value of product	Income over feed cost
	Number	*Number*	*Number*	*Percent*	*Pounds*	*Percent*	*Pounds*	*Cwt*	*Cwt*	*Cwt*	*Number*	*Dol*	*Dol*	*Dol*	*Dol*	*Dol*
1939-40---	19,330	467,775	24.2	---	8,049	4.05	326	---	---	---	---	32	68	0.84	165	97
1940-41---	20,590	500,340	24.3	---	8,182	4.06	332	---	---	---	---	34	70	.86	176	106
1941-42---	17,341	430,057	24.8	---	8,271	4.06	336	---	---	---	---	42	82	.99	206	124
1942-43---	12,006	306,142	25.5	---	8,219	4.06	334	---	---	---	---	53	99	1.20	245	146
1943-44---	11,433	308,678	27.0	---	8,141	4.05	330	---	---	---	---	63	118	1.45	274	156
1944-45---	11,204	304,748	27.2	---	8,434	4.02	339	---	---	---	---	68	128	1.49	302	174
1945-46---	11,795	318,461	27.0	---	8,440	4.05	342	---	---	---	---	70	130	1.54	314	184
1946-47---	15,566	418,738	26.9	---	8,454	4.02	340	---	---	---	---	79	141	1.67	352	211
1947-48---	18,573	494,036	26.6	---	8,429	4.01	338	---	---	---	---	95	165	1.96	388	223
1948-49---	22,312	586,815	26.3	---	8,701	4.02	350	---	---	---	---	85	156	1.79	390	234
1949-50---	24,841	675,685	27.2	---	8,949	4.01	359	---	---	---	---	76	147	1.64	359	212
1950-51---	26,134	721,311	27.6	---	8,983	4.02	361	---	---	---	---	81	154	1.71	370	216
1951-52---	26,423	768,916	29.1	---	9,015	3.97	358	---	---	---	---	87	165	1.83	399	234
1952-53---	18,557	525,346	28.3	---	9,069	3.96	359	30	56	37	168	101	194	2.14	461	267
1953-54---	26,834	748,234	27.9	---	9,117	3.96	361	28	55	37	174	93	188	2.06	434	246
1954-55---	28,727	822,254	28.6	---	9,261	3.94	365	28	61	37	178	89	183	1.98	429	246
1955-56---	28,254	849,344	30.1	---	9,470	3.93	372	29	64	39	174	86	181	1.91	433	252
1956-57---	27,133	863,275	31.8	---	9,621	3.92	377	30	66	39	173	88	183	1.90	448	265
1957-58---	27,525	900,269	32.7	---	9,787	3.91	383	31	69	40	171	92	190	1.94	462	272
1958-59---	27,796	902,074	32.5	---	10,042	3.89	391	33	75	40	174	93	195	1.94	475	280
1959-60---	23,220	795,892	34.3	---	10,045	3.89	391	33	76	40	169	93	196	1.95	479	283
1960-61---	18,644	689,710	37.0	---	10,048	3.88	390	32	78	39	163	94	198	1.97	485	287
1961-62---	22,853	882,827	38.6	---	10,676	3.87	413	36	82	40	175	103	207	1.94	502	295
1962-63---	27,093	1,089,290	40.2	84	10,983	3.85	423	39	92	40	156	113	222	2.02	501	279
1963-64---	27,893	1,173,099	42.1	84	11,428	3.84	439	42	98	38	151	120	237	2.07	521	284
1964-65---	28,237	1,229,676	43.5	85	11,744	3.82	449	44	102	38	151	127	244	2.08	539	295
1965-66---	28,013	1,260,621	45.0	85	11,885	3.81	453	45	108	36	114	133	256	2.15	559	303
1966-67---	27,483	1,282,357	46.7	85	12,030	3.82	459	47	113	36	---	143	265	2.20	631	366
1967-68---	25,447	1,257,600	49.4	85	12,121	3.81	462	48	120	34	134	149	271	2.27	667	395
1968-69---	25,208	1,271,983	50.5	85	12,223	3.80	465	49	---	33	132	146	266	2.21	700	434
1969-70---	23,130	1,227,860	53.1	85	12,428	3.79	471	50	124	32	129	153	273	2.23	736	463
1970-71---	22,824	1,240,414	54.3	85	12,659	3.77	477	51	116	33	120	165	287	2.30	767	480
1971-72---	20,987	1,211,464	57.7	85	12,775	3.75	479	52	116	30	122	174	301	2.39	791	490
1972-73---	22,628	1,322,782	58.5	85	12,801	3.76	481	52	118	30	113	187	321	2.54	821	500
1973-74---	20,083	1,217,462	60.6	85	12,604	3.74	472	51	118	29	116	262	422	3.40	989	567
1974-75---	20,444	1,297,541	63.5	85	13,024	3.76	489	51	123	29	110	318	527	4.11	1,114	587
1975-76---	20,470	1,318,140	64.4	86	13,326	3.74	498	52	126	28	113	315	557	4.23	1,229	672
1976-77---	17,642	1,210,810	68.6	86	13,849	3.75	519	55	129	28	112	358	609	4.46	1,371	762
1977-78---	18,392	1,299,256	70.6	86	13,978	3.71	518	57	126	28	113	355	612	4.44	1,404	792
1978-79---	18,587	1,310,083	70.5	86	14,129	3.70	522	58	126	30	109	372	629	4.49	1,555	927
1979-80---	18,473	1,282,145	69.4	86	14,227	3.69	525	59	128	30	107	411	677	4.75	1,750	1,073
1980[2]-----	18,272	1,280,895	70.1	86	14,359	3.69	530	59	126	31	87	437	715	4.90	1,851	1,136
1981------	19,782	1,433,366	72.5	85	14,553	3.68	535	60	120	32	(3)	494	800	5.59	2,008	1,208
1982------	19,764	1,448,568	73.3	85	14,588	3.67	535	61	90	28	95	459	773	5.40	1,992	1,218

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[1] Prior to 1952, individual feeds were not reported. Only cows and herds from States reporting feeding and other information were included.

[2] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

[3] Pasture days not reported because value based only on records with pasture days >0.

Table 14.--Summary of cow-year totals and averages for all nonofficial herd records, 1962-82

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat
	Number	*Number*	*Number*	*Percent*	*Pounds*	*Percent*	*Pounds*
1962-63----------	14,761	423,545	28.7	---	10,606	3.73	396
1963-64----------	13,574	385,493	28.4	---	10,885	3.71	404
1964-65----------	18,409	559,608	30.4	---	11,402	3.71	423
1965-66----------	19,172	598,133	31.2	---	11,472	3.70	425
1966-67----------	17,912	575,816	32.1	---	11,607	3.72	432
1967-68----------	17,318	592,647	34.2	84	11,847	3.72	441
1968-69----------	17,908	614,939	34.3	84	11,932	3.72	444
1969-70----------	16,971	611,819	36.1	84	12,185	3.72	453
1970-71----------	16,569	612,080	36.9	84	12,413	3.71	460
1971-72----------	16,107	618,088	38.4	84	12,544	3.74	466
1972-73----------	16,183	631,269	39.0	84	12,488	3.75	468
1973-74----------	16,037	639,964	39.9	85	12,353	3.75	463
1974-75----------	14,704	610,910	41.5	85	12,503	3.80	475
1975-76----------	16,784	753,089	44.9	85	13,104	3.79	497
1976-77----------	17,662	815,988	46.2	85	13,539	3.76	509
1977-78----------	18,675	891,738	47.8	85	13,771	3.75	516
1978-79----------	19,248	933,631	48.5	85	13,847	3.77	522
1979-80----------	19,328	953,595	49.3	85	13,969	3.77	527
1980[1]------------	19,617	980,870	50.0	85	14,080	3.76	529
1981-------------	21,037	1,105,418	52.5	85	14,177	3.74	530
1982[2]------------	21,585	1,143,728	53.0	85	14,213	3.76	534

[1] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

[2] Averages for fat yield and fat percentage are calculated from fewer records than is milk average. Milk average for records with fat can be calculated by dividing fat yield by fat percentage.

Table 15.--Summary of cow-year totals and averages for all nonofficial herd records with feeding and other information reported, 1962-81

Test year	Herds	Cow-years	Cow-years per herd	Days in milk	Milk	Fat	Fat	Concentrate	Succulent forage	Dry forage	Pasture days	Cost of concentrate	Feed cost	Feed cost/ cwt milk	Value of product	Income over feed cost
	Number	*Number*	*Number*	*Percent*	*Pounds*	*Percent*	*Pounds*	*Cwt*	*Cwt*	*Cwt*	*Number*	*Dol*	*Dol*	*Dol*	*Dol*	*Dol*
1962-63---	4,165	136,781	32.8	83	10,785	3.72	402	37	83	46	147	113	219	2.03	460	241
1963-64---	3,033	80,172	26.4	83	10,987	3.74	411	40	80	44	143	103	204	1.86	427	223
1964-65---	6,355	197,385	31.0	84	11,470	3.72	427	41	89	44	---	119	228	1.99	486	258
1965-66---	7,096	224,616	31.6	84	11,574	3.72	430	42	95	42	---	121	237	2.05	499	262
1966-67---	7,537	243,943	32.4	84	11,645	3.72	433	43	98	43	---	130	242	2.08	563	321
1967-68---	5,928	212,380	35.8	84	11,834	3.72	440	44	103	40	130	142	259	2.21	615	357
1968-69---	7,614	263,703	34.6	84	11,953	3.71	443	46	---	41	123	133	243	2.05	633	391
1969-70---	7,134	259,195	36.3	84	12,102	3.69	446	47	104	40	116	139	249	2.08	666	417
1970-71---	6,792	254,890	37.5	84	12,292	3.68	452	48	93	39	106	147	258	2.11	696	439
1971-72---	6,324	246,148	38.9	84	12,327	3.67	453	49	90	38	106	152	265	2.17	709	444
1972-73---	6,570	257,026	39.1	84	12,214	3.71	453	49	94	38	96	156	277	2.30	728	450
1973-74---	6,125	247,527	40.4	84	12,151	3.69	448	48	94	38	97	217	367	3.05	899	533
1974-75---	5,562	234,692	42.2	84	12,303	3.72	458	47	103	38	90	271	478	3.93	967	489
1975-76---	7,079	326,135	46.1	85	12,980	3.71	481	49	110	37	92	283	540	4.20	1,149	610
1976-77---	5,605	280,566	50.1	85	13,166	3.71	488	50	112	33	95	315	563	4.32	1,266	703
1977-78---	5,876	300,951	51.2	85	13,448	3.68	495	51	116	32	94	311	569	4.27	1,307	738
1978-79---	6,014	309,028	51.4	85	13,695	3.69	505	53	118	33	84	326	581	4.27	1,473	891
1979-80---	6,173	320,172	51.9	85	13,864	3.65	506	53	120	33	83	364	622	4.52	1,659	1,037
1980[1]-----	6,428	337,846	52.6	85	13,945	3.65	509	53	120	34	76	382	648	4.66	1,748	1,100
1981------	7,726	432,155	55.9	85	14,114	3.63	512	58	129	34	([2])	456	740	5.37	1,900	1,160
1982------	7,783	496,580	63.8	85	14,039	3.20	449	59	110	30	76	430	723	5.28	1,878	1,155

[1] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 by one-third.

[2] Pasture days not reported because value based only on records with pasture days 0.

Table 16.--Comparison of yield of cows on official test, nonofficial test, and all other cows, 1962-82

Test year	Official				Nonofficial				All other cows[2]			Superiority of official cows		Superiority of nonofficial cows	
	Herds	Cow-years[1]	Milk	Fat	Herds	Cow-years[1]	Milk	Fat	Cow-years[3]	Milk[4]	Fat[4]	Milk	Fat	Milk	Fat
	Number	*Number*	*Pounds*	*Pounds*	*Number*	*Number*	*Pounds*	*Pounds*	*Number*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1962-63---	41,937	2,006,534	11,286	434	25,376	726,478	10,606	396	13,817,988	6,844	255	4,442	179	3,762	141
1963-64---	40,670	2,010,144	11,685	447	25,598	752,229	10,885	404	13,206,127	7,148	263	4,537	184	3,737	141
1964-65---	40,075	2,087,581	11,976	457	26,604	818,406	11,402	423	12,409,013	7,353	270	4,623	187	4,049	153
1965-66---	38,879	2,058,592	12,127	462	26,259	839,839	11,472	425	11,613,569	7,530	276	4,597	186	3,942	149
1966-67---	37,683	2,098,919	12,307	468	25,439	825,127	11,607	432	10,818,954	7,756	292	4,551	176	3,851	140
1967-68---	36,869	2,131,929	12,397	471	25,143	847,485	11,847	441	10,144,086	8,035	292	4,362	179	3,812	149
1968-69---	35,617	2,138,953	12,553	476	24,359	842,330	11,932	444	9,588,217	8,319	311	4,234	165	3,613	133
1969-70---	34,308	2,122,011	12,750	483	23,281	839,343	12,185	453	9,101,646	8,701	315	4,049	168	3,484	138
1970-71---	33,996	2,218,402	13,000	489	22,581	836,751	12,413	460	8,853,847	8,848	320	4,152	169	3,565	140
1971-72---	33,197	2,244,685	13,226	496	21,345	805,555	12,544	466	8,725,760	9,135	332	4,091	164	3,409	134
1972-73---	33,578	2,359,611	13,287	499	20,895	806,270	12,488	468	8,456,119	9,155	332	4,132	167	3,333	136
1973-74---	33,146	2,416,669	13,163	493	19,738	783,195	12,353	463	8,097,136	9,047	328	4,116	165	3,306	135
1974-75---	32,222	2,432,961	13,421	505	18,112	749,807	12,503	475	8,037,232	9,146	332	4,275	173	3,357	143
1975-76---	32,232	2,438,365	13,632	511	20,010	945,101	13,104	497	7,703,534	9,248	336	4,384	175	3,856	161
1976-77---	33,755	2,581,164	14,435	539	21,000	1,006,359	13,539	509	7,443,477	9,452	342	4,983	197	4,087	167
1977-78---	34,971	2,704,064	14,631	542	22,768	1,159,776	13,771	516	7,075,160	9,592	341	5,039	201	4,179	175
1978-79---	36,105	2,792,175	14,644	542	22,745	1,201,500	13,847	522	6,845,325	9,434	344	5,210	198	4,413	178
1979-80---	37,526	2,966,558	14,786	547	22,943	1,225,311	13,969	527	6,882,131	10,247	369	4,539	178	3,722	158
1980[5]-----	39,524	3,197,353	14,960	553	23,451	1,282,715	14,080	529	6,654,932	9,991	359	4,969	194	4,089	170
1981------	40,933	3,382,977	15,137	558	24,910	1,407,203	14,177	530	6,132,820	10,085	358	5,052	200	4,092	172
1982------	41,029	3,431,507	15,280	564	25,173	1,406,677	14,213	534	6,187,816	10,241	364	5,039	200	3,972	170

[1] Number of herds and cow-years is enrollment Jan. 1 of second year through 1979-80 and for 1981 in testing year 1980 as reported in the annual participation reports. Number of all cows used in this table included Puerto Rico and Virgin Islands for first time in 1979-80. Figures for enrollment for 1978-79 are different from those in 1979 participation report because of a reporting error. Yield is from these herd average reports.

[2] Derived from national cow population and yield figures, excluding heifers not fresh. See Dairy Herd Impr. Ltr. 55(2) for years before 1979; see successive February issues of "Milk Production" and "Cattle" distributed by the Economics, Statistics, and Cooperatives Service, USDA, for 1979 and later.

[3] Since 1969-70, cow-years were calculated by subtracting Jan. 1 enrollment of tested cows from Jan. 1 estimate of all cows.

[4] See Dairy Herd Impr. Ltr. 55(2) for calculation of milk yield before 1975-76. Beginning with 1975-76, yield values for cows on all testing plans that include butterfat testing were subtracted from national values.

[5] National test year changed to calendar year in fall of 1980. Data included are from records ending any time in 1980. Data for 1980 overlap 1979-80 data by one-third.

Table 17.--Yield and value of product for all national milk cows for selected years, 1940-82[1]

Year	Average number of milk cows[2]		Average yield per cow			Total milk produced	Total fat produced	Total farm value of milk produced
	Annual	December	Milk	Fat	Fat			
	Thousands	*Thousands*	*Pounds*	*Percent*	*Pounds*	*Million pounds*	*Million pounds*	*Thousand dol*
1940----------	23,671	---	4,622	3.97	183	109,412	4,343	1,930,935
1942----------	25,027	---	4,736	3.97	188	118,533	4,704	2,867,340
1944----------	25,597	---	4,572	3.98	182	117,023	4,657	3,567,852
1946----------	24,089	---	4,886	3.97	194	117,697	4,677	4,512,653
1948----------	22,336	---	5,044	3.97	200	112,671	4,478	5,295,194
1950----------	21,944	---	5,314	3.96	210	116,602	4,618	4,431,995
1952----------	21,338	---	5,374	3.90	210	114,671	4,476	5,425,543
1954----------	21,581	---	5,657	3.86	219	122,094	4,717	4,757,279
1956----------	20,501	---	6,090	3.82	233	124,860	4,773	5,075,318
1958----------	18,711	---	6,585	3.78	249	123,220	4,658	5,037,729
1960----------	17,515	---	7,029	3.76	264	123,109	4,628	5,158,116
1962----------	16,842	---	7,496	3.74	280	126,251	4,718	5,182,148
1964----------	15,677	---	8,099	3.70	300	126,967	4,699	5,304,899
1966----------	14,071	13,756	8,522	3.69	314	119,912	4,426	5,801,039
1968----------	12,832	12,571	9,135	3.67	335	117,225	4,305	6,206,150
1970----------	12,000	11,916	9,751	3.66	357	117,007	4,284	6,757,294
1972----------	11,700	11,630	10,259	3.67	377	120,025	4,410	7,361,435
1974----------	11,230	11,215	10,293	3.66	377	115,586	4,238	9,723,186
1976----------	11,032	11,003	10,894	3.66	399	120,180	4,402	11,706,043
1978----------	10,803	10,792	11,243	3.67	412	121,461	4,455	12,956,601
1980----------	10,810	10,862	11,889	3.65	434	128,525	4,692	16,890,254
1981----------	10,923	11,011	12,177	3.64	442	133,013	4,827	18,398,974
1982----------	11,026	---	12,316	3.64	448	135,795	---	---

[1] Data through 1959 obtained from Statistical Bulletin 303, Economic Research, 1962; for 1960 through 1964, from Agricultural Statistics, 1971, p.381; for 1965 through 1969, from Statistical Bulletin 509, Statistical Research Service; for 1970 through 1974, from Statistical Bulletins 589 and 591, Economics, Statistics, and Cooperatives Service (ESCS, USDA); and for 1975 through 1978, from Statistical Bulletin 651, ESCS. Preliminary data for cow numbers and yield for 1979 through 1982 obtained from successive February issues of "Milk Production," ESCS; preliminary data for fat yield and total farm value of milk produced, from "Milk Production, Disposition, Income," published in May each year by ESCS. Final estimates are published at approximately 5-year intervals.

[2] Excludes data from Puerto Rico and Virgin Islands.

USDA SUMMARY OF 1982 U.S. GOAT HERD AVERAGES

By Gerald J. King and George R. Wiggans[1]

State and national summaries of dairy goat herd averages for milk and fat yield have been computed by the U.S. Department of Agriculture. The averages are from herds that (1) were enrolled in official and nonofficial National Cooperative Dairy Herd Improvement Program plans during 1982, (2) had been on test for at least 365 days prior to their last sample day on or before December 31, 1982, and (3) had does that averaged more than 40 percent days in milk and more than 500 pounds of milk. The percent days in milk is a measure of the proportion of the herd milking and can be affected by reproductive problems, herd turnover rate, and length of dry periods.

Data in table 1 show 12,001.1 doe-years (total days on test for all does divided by 365 days) in 1,054 herds for 1982. Nationally the average yield on a doe-year basis was 1,740 pounds of milk and 66 pounds of fat. Since the 1981 test year, the number of herds increased by 16, and the number of doe-years increased by 1,316.9.[2] The average number of doe-years per herd was 11.4, up 1.1 since the 1981 test year. The increases over the 1981 test year's yield averages were 25 pounds of milk and 1 pound of fat. For the 291 herds (2,663.6 doe-years) that were enrolled in protein testing, average protein yield was 55 pounds.

The average yield by breed is in table 2. Of the five major breeds, Saanens had the highest milk yield as in the 2 previous years, and Nubians had the highest fat yield. Table 3 shows the distribution of herds by milk yield. Twenty-one herds had milk yields above 3,000 pounds. The highest average milk yield was 3,955 pounds by a Nubian herd. The distribution of herds by fat yield is in table 4. The highest fat yield was 289 pounds, also by a Nubian herd.

Table 5 presents the distribution of herds by doe-years per herd. Most dairy goat herds were small; over 68 percent had 10 or fewer doe-years per herd. The most common herd size was 5.1 to 10 doe-years per herd, and the largest total number of doe-years occurred in herds of that size. The 24 herds with more than 50 doe-years per herd (2.3 percent) had 19.6 percent of the doe-years. The largest herd had 294.2 doe-years.

Table 6 gives the distribution of herds by percent days in milk. Almost 68 percent of the herds had between 71 and 90 percent days in milk.

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[2] King, G. J., and Wiggans, G. R. USDA summary of 1981 U.S. goat herd averages. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 59(1), pp. 19-21. 1983.

Table 1.--State and national doe-year totals and averages for 1982

	Records with milk and fat						Records with protein			
State[1]	Herds	Doe-years	Doe-years per herd	Milk	Fat	Fat	Herds	Doe-years	Protein	Protein
	Number	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Percent*	*Pounds*
Alabama ----------	6	36.6	6.1	1,261	5.00	63	4	28.1	3.44	41
Alaska ------------	---	---	---	---	---	---	---	---	---	---
Arizona -----------	38	334.8	8.8	1,623	3.75	61	---	---	---	---
Arkansas----------	11	316.5	28.8	1,321	3.66	48	1	47.6	2.92	38
California---------	204	3,475.2	17.0	1,928	3.75	72	4	44.3	3.23	75
Colorado----------	35	181.9	5.2	1,907	3.84	73	21	124.1	3.38	65
Connecticut-------	15	121.8	8.1	1,885	3.84	72	---	---	---	---
Delaware ---------	2	14.2	7.1	1,681	4.55	76	---	---	---	---
Florida------------	15	96.8	6.5	1,326	3.85	51	10	46.5	3.10	39
Georgia -----------	14	96.3	6.9	1,542	3.98	61	3	31.2	2.95	51
Hawaii ------------	---	---	---	---	---	---	---	---	---	---
Idaho--------------	16	114.0	7.1	2,053	3.86	79	4	26.9	3.09	65
Illinois ------------	13	147.0	11.3	1,904	3.58	68	---	---	---	---
Indiana------------	8	64.7	8.1	1,746	3.41	59	5	37.5	2.81	47
Iowa---------------	9	74.3	8.3	1,674	3.49	58	---	---	---	---
Kansas ------------	24	127.1	5.3	1,537	4.03	62	---	---	---	---
Kentucky----------	1	18.9	18.9	2,107	3.75	79	---	---	---	---
Louisiana ---------	5	45.0	9.0	1,700	4.39	75	---	---	---	---
Maine -------------	38	270.0	7.1	1,659	3.70	61	8	45.2	3.24	52
Maryland----------	26	581.0	22.3	1,993	3.48	69	---	---	---	---
Massachusetts ----	6	36.2	6.0	1,767	3.82	67	---	---	---	---
Michigan----------	35	268.0	7.7	1,644	3.95	65	6	37.0	3.29	46
Minnesota---------	12	172.9	14.4	1,907	3.61	69	---	---	---	---
Mississippi --------	---	---	---	---	---	---	---	---	---	---
Missouri-----------	17	214.8	12.6	1,670	3.81	64	---	---	---	---
Montana ----------	8	59.3	7.4	1,752	3.64	64	---	---	---	---
Nebraska----------	1	7.2	7.2	1,456	3.50	51	---	---	---	---
Nevada------------	12	101.8	8.5	1,665	3.67	61	---	---	---	---
New Hampshire---	16	123.0	7.7	1,792	3.52	63	---	---	---	---
New Jersey -------	27	276.4	10.2	1,567	3.56	56	27	276.4	3.04	48
New Mexico ------	9	98.7	11.0	1,896	3.48	66	---	---	---	---
New York---------	70	517.9	7.4	1,726	3.87	67	70	517.9	3.19	55
North Carolina ---	5	45.1	9.0	1,568	4.28	67	2	10.8	3.02	55
North Dakota-----	1	11.7	11.7	1,441	3.96	57	---	---	---	---
Ohio---------------	45	367.8	8.2	1,592	4.07	65	20	189.7	3.21	52
Oklahoma---------	12	120.7	10.1	1,784	3.45	62	---	---	---	---
Oregon------------	116	1,259.7	10.9	1,686	3.91	66	37	465.4	3.48	60
Pennsylvania------	9	156.7	17.4	1,670	3.87	65	---	---	---	---
Puerto Rico-------	1	146.8	146.8	792	2.90	23	---	---	---	---
Rhode Island------	6	55.0	9.2	1,457	3.56	52	---	---	---	---
South Carolina----	3	11.6	3.9	1,728	3.66	63	---	---	---	---
South Dakota -----	---	---	---	---	---	---	---	---	---	---
Tennessee---------	19	142.5	7.5	1,985	3.60	72	---	---	---	---
Texas -------------	25	287.1	11.5	1,537	4.05	62	23	268.2	3.44	54
Utah --------------	4	25.1	6.3	1,737	4.01	70	3	21.3	3.06	51
Vermont-----------	4	63.3	15.8	1,599	3.46	55	2	45.3	3.06	42
Virginia -----------	18	238.2	13.2	1,465	4.08	60	---	---	---	---
Washington -------	48	409.9	8.5	1,773	4.01	71	28	260.2	3.25	60
West Virginia -----	4	41.8	10.4	1,677	3.25	54	---	---	---	---
Wisconsin ---------	38	589.1	15.5	1,451	3.68	53	12	132.8	3.08	51
Wyoming----------	3	36.7	12.2	1,591	4.67	74	1	7.2	3.64	46
United States-----	1,054	12,001.1	11.4	1,740	3.78	66	291	2,663.6	3.25	55

[1] Includes Puerto Rico.

Table 2.--Average milk and fat yield by breed, 1982

Breed	Records with milk and fat						Records with protein			
	Herds	Doe-years	Doe-years per herd	Milk	Fat	Fat	Herds	Doe-years	Protein	Protein
	Number	*Number*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Number*	*Percent*	*Pounds*
Alpine-------------	201	1,781.2	8.9	1,835	3.61	66	66	560.9	3.09	57
Experimental -----	5	33.6	6.7	1,611	4.32	70	3	19.4	3.35	58
LaMancha---------	36	308.7	8.6	1,721	3.75	65	9	81.2	3.44	52
Nubian ------------	316	2,717.1	8.6	1,536	4.45	68	87	694.8	3.68	56
Saanen ------------	83	649.8	7.8	1,934	3.43	66	24	190.6	3.18	54
Toggenburg -------	97	946.4	9.8	1,892	3.45	65	37	396.1	3.01	55
Mixed [1]-----------	316	5,564.3	17.6	1,763	3.65	64	65	720.6	3.16	52
All breeds---------	1,054	12,001.1	11.4	1,740	3.78	66	291	2,663.6	3.25	55

[1] Includes herds with breed not reported.

Table 3.--Distribution of goat herds by milk yield, 1982

Milk (pounds)	Herds	Herds
	Number	*Percent*
501 - 1,000-------	50	4.8
1,001 - 1,500-------	281	26.7
1,501 - 2,000-------	417	39.6
2,001 - 2,500-------	216	20.5
2,501 - 3,000-------	69	6.5
More than 3,000-------	21	2.0
Total-------------------	1,054	100.0

Table 4.--Distribution of goat herds by fat yield, 1982

Fat (pounds)	Herds	Herds
	Number	*Percent*
Less than 26---------	4	0.4
26 - 50---------	191	18.1
51 - 75---------	532	50.5
76 - 100---------	259	24.6
101 - 125---------	63	6.0
More than 125---------	5	.5
Total-------------------	1,054	100.0

Table 5.--Distribution of goat herds by doe-years per herd, 1982

Doe-years per herd (number)	Herds	Herds	Doe-years	Doe-years
	Number	*Percent*	*Number*	*Percent*
Less than 5.1---	322	30.6	1,149.9	9.6
5.1 - 10.0---	396	37.6	2,887.9	24.1
10.1 - 15.0---	157	14.9	1,895.4	15.8
15.1 - 20.0---	70	6.6	1,212.4	10.1
20.1 - 25.0---	33	3.1	738.8	6.2
25.1 - 30.0---	20	1.9	547.9	4.6
30.1 - 35.0---	11	1.0	364.5	3.0
35.1 - 40.0---	11	1.0	418.6	3.5
40.1 - 45.0---	8	.8	335.0	2.8
45.1 - 50.0---	2	.2	95.7	.8
More than 50.0---	24	2.3	2,355.0	19.6
Total--------------	1,054	100.0	12,001.1	100.0

Table 6.--Distribution of goat herds by percent days in milk, 1982

Days in milk (percent)	Herds	Herds
	Number	*Percent*
41 - 50----------------	23	2.2
51 - 60----------------	71	6.7
61 - 70----------------	190	18.0
71 - 80----------------	384	36.4
81 - 90----------------	329	31.2
91 - 100----------------	57	5.4
Total-------------------	1,054	100.0

CHANGES IN THE AIPL GENETIC EVALUATION PROCEDURES

By George R. Wiggans[1]

Procedures for computing and distributing genetic evaluations are changed occasionally to improve the accuracy and enhance the usefulness of the evaluations. The following changes were implemented in recent genetic evaluation runs as a result of research at the Animal Improvement Programs Laboratory (AIPL).

January 1983

Goat buck evaluations were calculated by adapting procedures for best linear unbiased prediction to dairy goat records. All lactation records for each doe were used, and relationships among bucks were incorporated. Evaluations were based on 58,562 daughter records of 12,678 bucks of the Alpine, LaMancha, Nubian, Saanen, and Toggenburg breeds.

For dairy bull evaluations, daughter contemporary deviation for each daughter record was adjusted for genetic merit of contemporaries by using the Predicted Difference (PD) rather than the Modified Contemporary Deviation (MCD) for each contemporary's sire. This change previously had been incorporated in the summer 1982 Mexican evaluations. Using PD rather than MCD had relatively little effect on most Sire Summaries but caused a few evaluations to change more than they would have otherwise. Because of this change, a bull's evaluation should change less from run to run.

All lactation records that had less than 305 days in milk, including records with termination code 0 (cow went dry), were projected to 305 days. In the past, records with termination code 0 and less than 305 days in milk were not projected. Recent AIPL research indicated that projection of those records results in a measure of lactation yield with higher heritability and repeatability than when they are not projected.

A percentile ranking of active artificial-insemination (AI) bulls for PD dollars (PD$) was added to the Active AI Sire Summary and the format-380 tape. The percentile ranking is based on active AI bulls and indicates the percentage of active AI bulls that the evaluation of a given bull exceeds. The highest percentile is 99 and the lowest is 0.

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

Elite cow records on the Cow Index tapes were designated by a letter "E" on distribution tapes so that the Elite designation could be forwarded to the owners along with the Cow Indexes. The top 10-percent Cow Index tape provided to AI organizations was changed to format 105 to provide additional information.

Edit limits for all breeds were changed to 200 pounds per day for maximum actual milk yield and 10 pounds per day for maximum actual fat yield. Edit limits for minimum actual daily yields were not changed. All edits for maximum and minimum lactation milk and fat yields were eliminated.

July 1983

The Complete USDA-DHIA Sire Summary was distributed only on 48X-reduction microfiche. This medium reduces the effort of printing and distributing the Sire Summary. The PD's for yield of solids-not-fat (SNF) and protein were computed in addition to percentages. These data were included on the format-380 tape, and lists were distributed to AI organizations and State Extension Dairy Specialists. Identification edits for Red and Whites were revised to allow information from grade animals to be included in evaluations. The edits now are the same as for other breeds.

The method of calculating the contribution of ancestor merit to PD was changed. The average daughter merit of bulls with similar pedigree indexes was replaced by a function of pedigree index to represent ancestor merit. This estimate of ancestor merit is affected by birth date and type of sampling program. This procedure simplifies computations and improves the accuracy of evaluations. A similar change was made for the summer 1983 Mexican evaluations. However, birth date and type of sampling were not considered. Bulls without sire and maternal grandsire evaluations were grouped by country of origin.

The grouping procedure also was changed for protein and SNF evaluations. Groups were based on ancestor merit for milk yield. Ancestor information also was incorporated into sire evaluations for protein and SNF through a relationship matrix.

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